1. During maximal water reabsorption, the concentration of calcium within the kidney is highest in:

   A. Bowman's space.
   B. Henle's loop.
   C. the proximal convoluted tubule.
   D. the distal convoluted tubule.
   E. the collecting duct.

2. A patient has recurrent nephrolithiasis and Type I renal tubular acidosis. Urolithiasis is most likely secondary to which metabolic problem:

   A. excessive production of 1,25-dihydroxyvitamin D.
   B. a lack of osteopontin.
   C. hypocitraturia.
   D. hyperoxaluria.
   E. hyperuricosuria.

3. During transurethral resection of a papillary bladder tumor on the left lateral wall, the patient has an obturator reflex. The bladder wall is thinned, but the tumor remains intact. Prior to resuming resection, the next step is:

   A. reduce cutting current and distend bladder to minimize movement.
   B. increase cutting current to minimize contact time and reduce bladder volume.
   C. switch irrigating fluid from glycine to water to reduce conductivity.
   D. reduce cutting current and bladder volume.
   E. switch cutting current from pure to blend and secure left leg.

4. Four months after a pubovaginal sling procedure, a woman requires CIC for persistent urinary retention. The next step is:

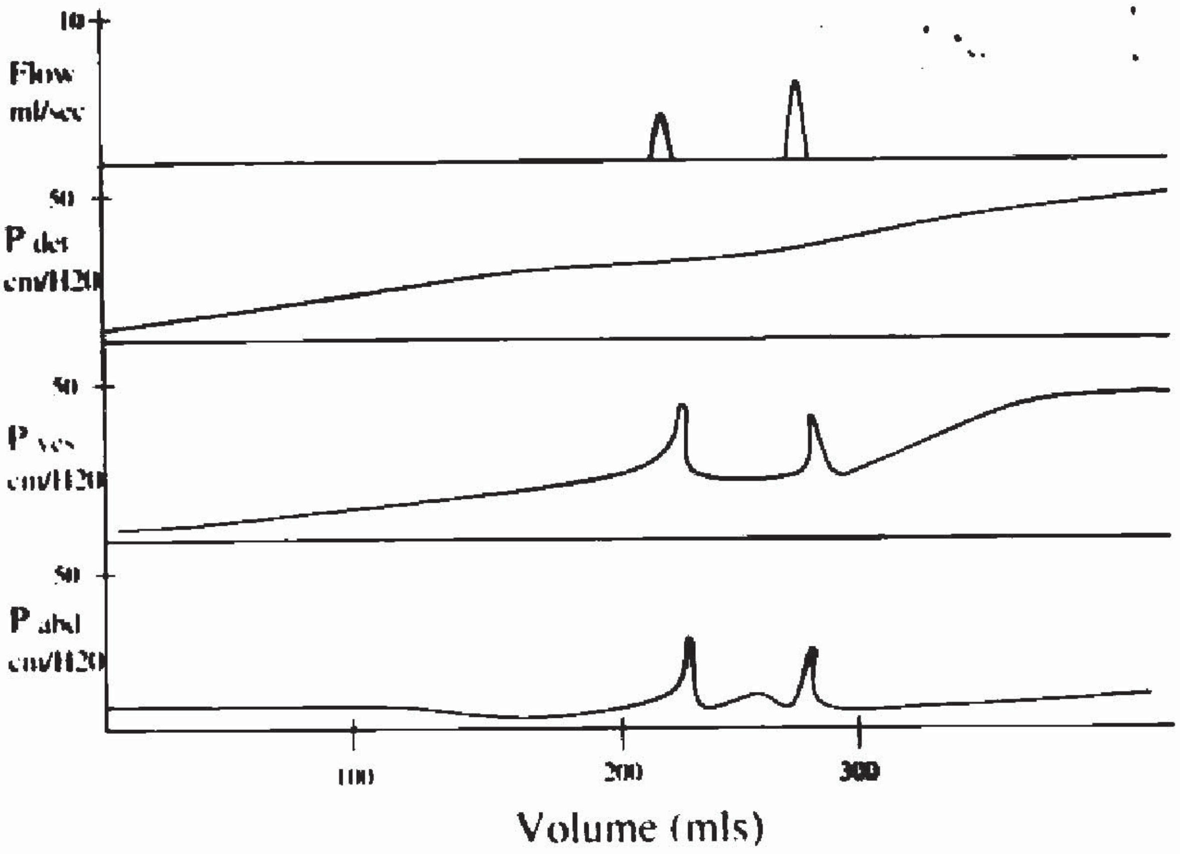
   A. alpha-blocker.
   B. bethanechol.
   C. urethral dilation.
   D. continue CIC.
   E. urethrolysis.

5. An asymptomatic, 72-year-old man has a fever of 102° F of one week duration. A urine culture shows Aerobacter aerogenes greater than 10^5 col/ml. His WBC is 18,000. CT scan of the abdomen reveals an ill-defined mass in the upper pole of his right kidney on both the pre- and post-contrast studies. Ultrasound shows internal echoes in the mass. The mass is most likely:

   A. segmental renal infarct.
   B. segmental pyelonephritis.
   C. renal tumor.
   D. xanthogranulomatous pyelonephritis.
   E. renal abscess.

6. A 65-year-old man has urinary incontinence. Three years earlier, he underwent radical retropubic prostatectomy for prostate cancer followed by adjuvant external beam radiation. His serum PSA is now undetectable. PVR is minimal. His urodynamic evaluation while taking anticholinergics is shown in the exhibit. The next step is:

A. transurethral collagen injection.
B. perineal sling.
C. artificial urinary sphincter.
D. augmentation cystoplasty.
E. augmentation cystoplasty and artificial urinary sphincter.



7. Widespread and indiscriminate human immunodeficiency virus (HIV) antibody testing is not recommended because the:

   A. assays are not sensitive.
   B. false-negative rate is too high.
   C. false-positive rate is too high.
   D. risk of infection is low.
   E. prevalence of infection is high.

8. Relaxation of the external sphincter during a bladder contraction requires the presence of intact neural pathways between the pontine micturition center and the:

   A. basal ganglia.
   B. cerebral cortex.
   C. sympathetic ganglia.
   D. anterior horn cell nucleus in the thoracolumbar spinal cord.
   E. Onuf's nucleus in the sacral spinal cord.

9. A 55-year-old man with bladder cancer undergoes a radical cystectomy with a planned orthotopic neobladder. Intraoperative frozen-section reveals negative lymph nodes but invasive TCC is detected at the prostatic apical margin. The best management is:

   A. ileal neobladder.
   B. ileal neobladder and adjuvant pelvic radiotherapy.
   C. ileal neobladder and adjuvant chemotherapy.
   D. ileal conduit.
   E. continent cutaneous pouch.

10. An otherwise healthy 65-year-old man elects active surveillance for T1c, PSA 8.2 ng/dl, Gleason score 6 (1 of 12 cores positive) prostate cancer. His digital rectal examination remains normal and subsequent serial PSA values of 7.1, 10.2, and 8.9 ng/dl at 6, 12, and 18 months respectively. The next step is:

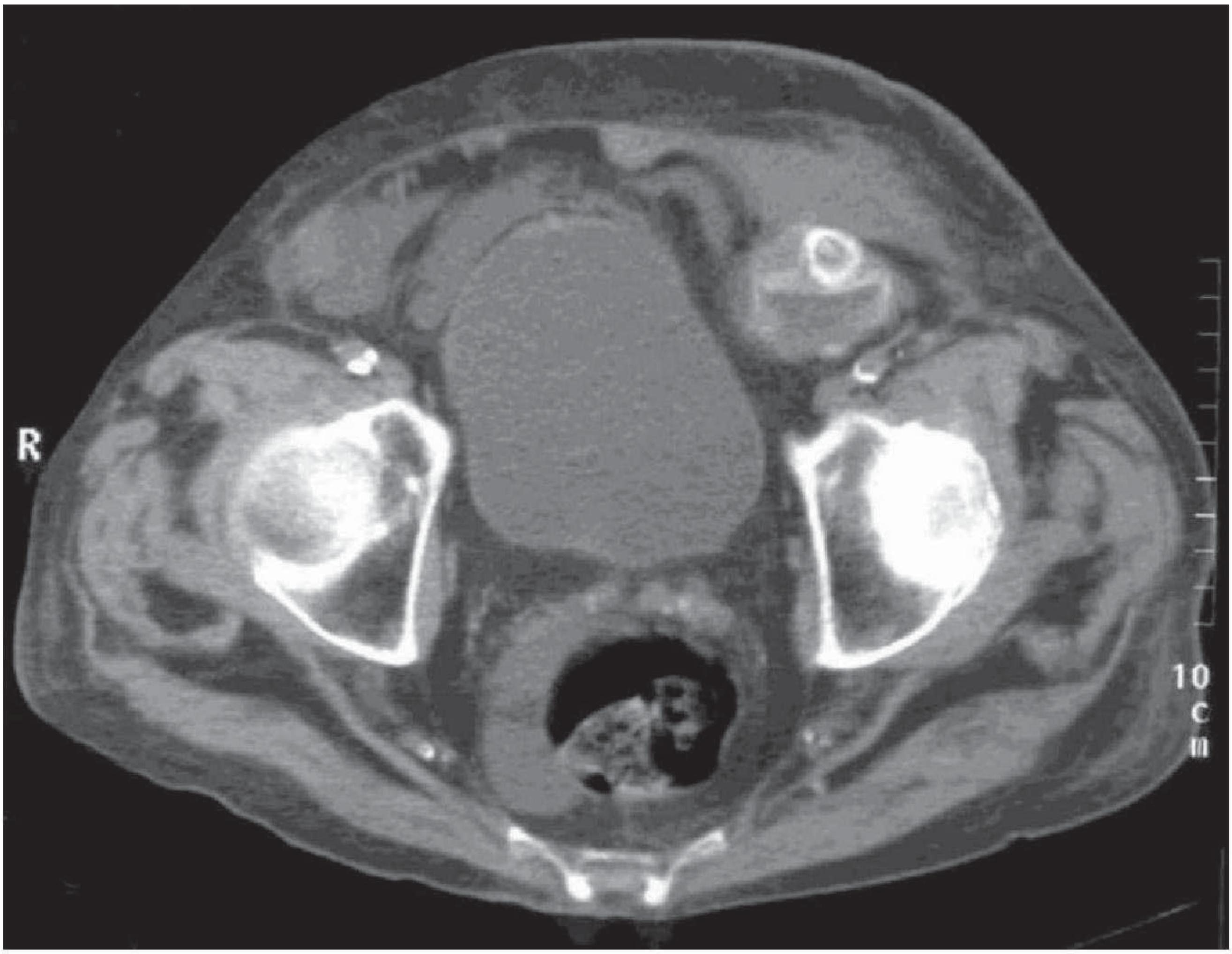
    A. endorectal MRI scan.
    B. TRUS and prostate biopsy.
    C. bone scan.
    D. ProstaScint® scan.
    E. definitive local therapy.

11. The characteristic that distinguishes primary hypoadrenalism from secondary (pituitary) hypoadrenalism is:

    A. hypotension.
    B. metabolic alkalosis.
    C. cutaneous hyperpigmentation.
    D. hypernatremia.
    E. hyperkalemia.

12. A 62-year-old diabetic man had inflatable penile prosthesis cylinders removed for infection. Six months later, he requests prosthesis reimplantation. He has suprapubic discomfort. On physical exam, the corpora are extremely fibrotic. Pelvic CT scan is shown in the exhibit. The next step is:

A. pelvic exploration, reimplant at later date.
B. pelvic exploration, immediate reimplantation.
C. reimplant multi-component inflatable prosthesis.
D. I.V. antibiotics for two weeks, then reimplant multi-component prosthesis.
E. implant malleable prosthesis only.



13. The agent that has proven efficacy for prevention of acute urinary retention and the need for surgery in men with BPH is:

A. saw palmetto.
B. flutamide.
C. finasteride.
D. tamsulosin.
E. doxazosin.

14. Which of the following correlates with improved patency and pregnancy rates after vasectomy reversal:

A. absence of sperm granuloma.
B. increased diameter of proximal vas.
C. a multi-layered anastomosis.
D. the length of the proximal vas.
E. an increase in cross-sectional tubular area of the testis.

15. A 55-year-old obese woman with multiple medical problems is scheduled for a cystectomy and urinary diversion. Pre-operative CT urogram shows mild bilateral hydroureteronephrosis. At the time of cystectomy the mesentery of the bowel is shortened and infiltrated with fat. The most appropriate type of diversion is:

A. continent cutaneous diversion.
B. bilateral cutaneous ureterostomies.
C. antirefluxing transverse colon conduit.
D. ileal conduit with loop stoma (Turnbull).
E. antirefluxing sigmoid colon conduit.

16. An independent factor associated with poor prognosis in patients with local recurrence of renal cell carcinoma following radical nephrectomy is:

A. pulmonary metastasis.
B. age > 65 years.
C. ipsilateral adrenal location.
D. time to local recurrence.
E. size of local recurrence.

17. During repair of an intraperitoneal bladder rupture resulting from blunt trauma, a large, expanding, bilateral pelvic hematoma is noted. Significant bleeding is seen coming through a tear in the peritoneum overlying the hematoma on the right. Although local pressure significantly slows the hemorrhage, persistent bleeding is noted once pressure is removed. The next step is:

A. intraoperative arteriography.
B. ligate right hypogastric artery.
C. ligate right hypogastric vein.
D. place patient in a MAST suit.
E. pack pelvis at site of bleeding.

18. A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on digital rectal exam. Serum PSA is 3.0 ng/ml. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The next step is:

A. observation.
B. repeat prostate biopsies in three months.
C. cycloserine for six months.
D. INH for six months.
E. INH and rifampin for six months.

19. A 58-year-old patient has LUTS. The diagnostic test that should routinely be performed in addition to history and physical examination is:

A. urinalysis.
B. serum creatinine.
C. uroflowmetry.
D. PVR.
E. pressure flow study.

20. A 35-year-old man with azoospermia desires a biological child. Testosterone is 275 ng/dl (normal 300-1000 ng/dl), LH is 28 mIU/ml (normal 2-10 mIU/ml) and FSH is 15 mIU/ml (normal 2-12 mIU/ml). Both testes are 3 cm in length and soft. The next step is:

A. administer clomiphene citrate.
B. administer hCG.
C. scrotal ultrasound.
D. cranial MRI scan.
E. microsurgical testicular sperm extraction.

21. During laparoscopic left radical nephrectomy, judicious placement of clips on the primary branches of the main renal vein is most important to facilitate:

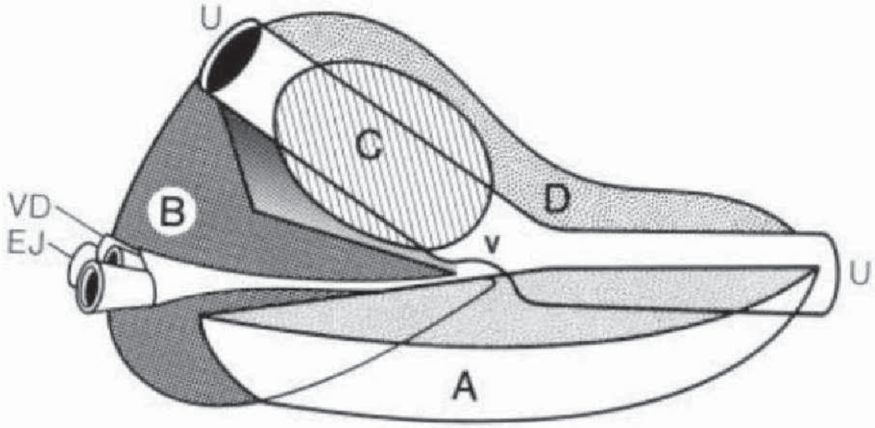
A. lymphadenectomy.
B. en bloc excision with negative margins.
C. adrenalectomy.
D. application of the endovascular stapler onto the main renal vein.
E. dissection and occlusion of the main renal artery(ies).

22. A 28-year-old man has distal penile pain two weeks following penile revascularization using an inferior epigastric artery to deep dorsal vein anastomosis. On examination, he has glans edema and patchy necrosis of the glans skin. The next step is:

A. pudendal arteriography.
B. duplex Doppler ultrasound of the penis.
C. ligation of the deep dorsal vein.
D. revision of the arterio-venous anastomosis.
E. local skin care.

23. A schematic drawing of a sagittal view of the prostate in a 21-year-old man is shown in the exhibit. The letter "U" corresponds to the urethra. The letter "C" corresponds to the:

A. peripheral zone.
B. central zone.
C. transition zone.
D. fibromuscular stroma.
E. median lobe.



24. An 80-year-old woman is referred by her gynecologist for evaluation of an asymptomatic 8 mm mass protruding from the urethral meatus. It arises from the anterior aspect of the distal urethra and is covered with smooth, pink, non-ulcerated epithelium. Appropriate initial management is:

A. observation.
B. excision.
C. fulguration.
D. estrogen cream.
E. laser ablation.

25. A 45-year old woman has persistent voiding dysfunction 18 months following a low anterior resection for rectal cancer. The most likely pattern on videourodynamics will be:

A. normal compliance, bladder neck incompetence, fixed external sphincter tone.
B. decreased compliance, bladder neck incompetence, fixed external sphincter tone.
C. decreased compliance, competent bladder neck, normal external sphincter tone.
D. normal compliance, competent bladder neck, normal external sphincter tone.
E. decreased compliance, bladder neck incompetence, normal external sphincter tone.

26. A 26-year-old man sustains a gunshot wound to the left flank. Exploration reveals normal kidneys. One week later, he has an acute rise in serum creatinine to 3.5 mg/dl. The best next step is:

A. abdominal and pelvic CT scan.
B. retrograde pyelography.
C. abdominal ultrasonography.
D. IVP.
E. arteriography.

27. The best method to limit postoperative chronic leg edema following a inguinal groin dissection for penile cancer is to:

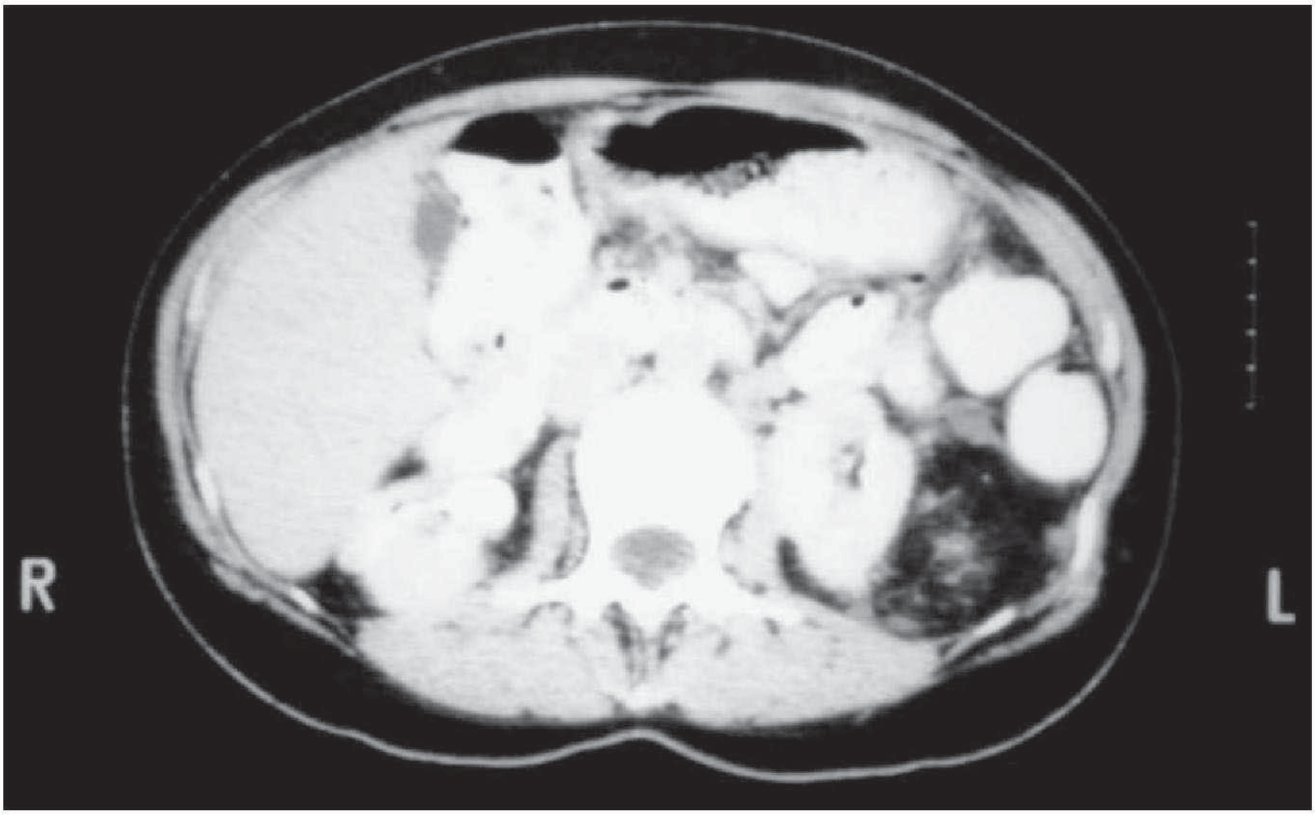
A. preserve the saphenous vein.
B. divide the inguinal ligament.
C. transpose the sartorius muscle over the vessels after dissection.
D. limit the dissection superficial to Scarpa's fascia.
E. maintain the plane of dissection anterior to the femoral vessels.

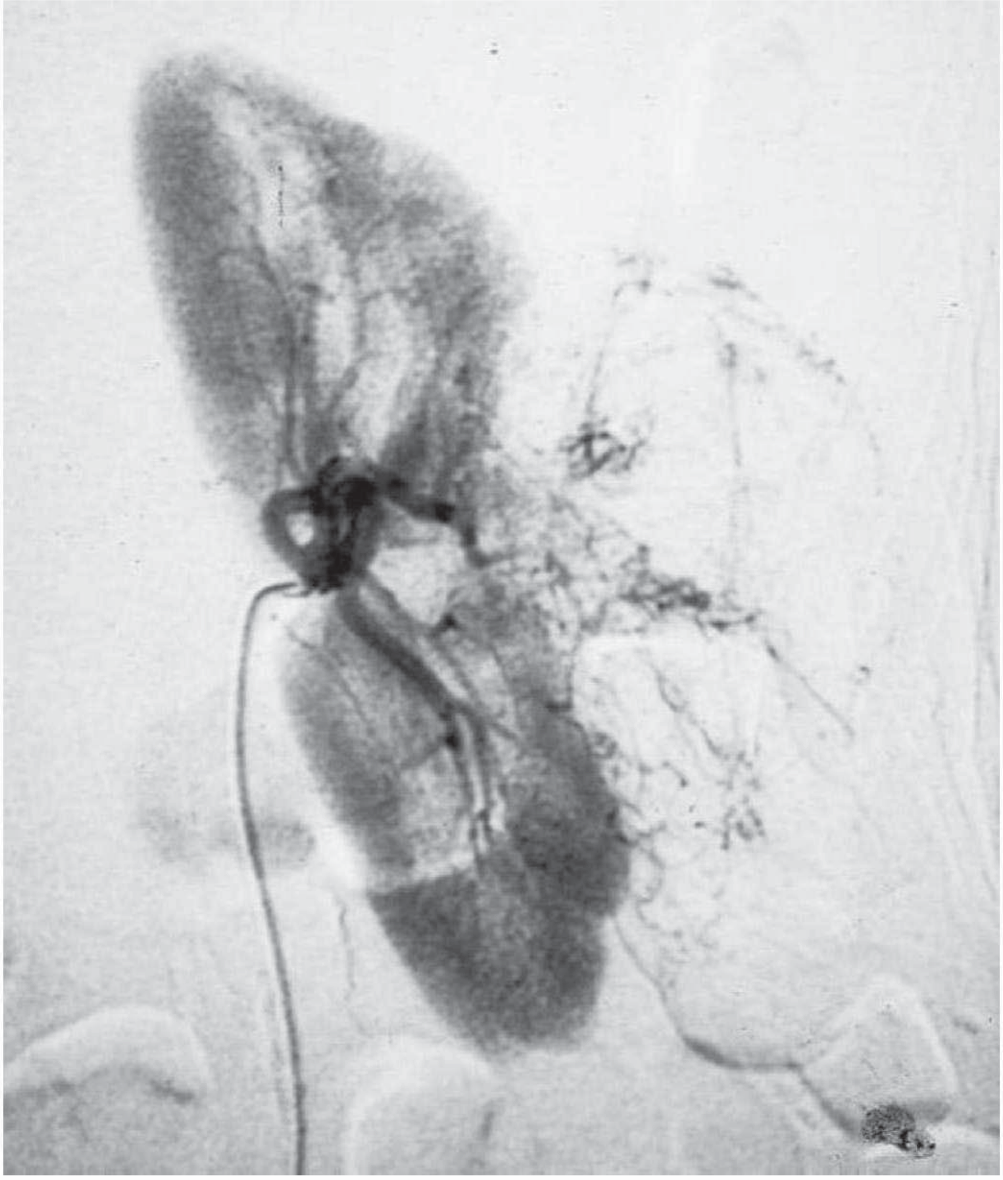
28. Normal bladder compliance during physiologic filling is primarily due to:

A. autonomic nerve activity.
B. circulating hormones.
C. cholinergic receptor activity.
D. local secretion of nitric oxide.
E. bladder wall viscoelasticity.

29. A 49-year-old woman with occasional epigastric discomfort is evaluated with CT scan and renal angiography shown in exhibits 1 and 2. The best management is:

A. observation.
B. selective embolization.
C. partial nephrectomy.
D. percutaneous drainage.
E. radical nephrectomy.





30. The best method to distinguish a benign from a malignant colovesical fistula is:

A. cystoscopy with biopsy.
B. barium enema and cystogram.
C. CT scan.
D. sigmoidoscopy with biopsy.
E. urine cytology.

31. A 65-year old man three months following a bilateral nerve sparing radical prostatectomy has erectile dysfunction. He has failed oral therapy and wishes not to pursue intracavernosal injection therapy. He attempts intra-urethral alprostadil 1000 mcg. The most likely occurrence is:

A. failure to get an erection.
B. penile pain.
C. headache.
D. hypotension.
E. urethral bleeding.

32. A 27-year-old woman with autosomal dominant polycystic kidney disease continues to experience fever and flank pain despite two weeks of appropriate oral antimicrobial therapy for an E. coli UTI. A urine culture reveals no growth. The next step is:

A. renal ultrasonography.
B. IVP.
C. CT scan.
D. retrograde pyelogram.
E. isotope renogram.

33. A 51-year-old man has a continent urinary diversion using detubularized right colon. Three months later, he is asymptomatic but a pouchogram shows Grade III right ureteral reflux. CT urogram is normal. The next step is:

A. right to left transureteroureterostomy.
B. reimplant the right ureter with a longer tunnel.
C. antibiotic prophylaxis.
D. pouch catheterization every two hours.
E. observation.

34. The ideal candidate for medical therapy with alpha-blockers for BPH should have:

A. severe symptoms on the AUA Symptom Score.
B. bothersome symptoms.
C. a previous episode of acute urinary retention.
D. recurrent gross hematuria.
E. a large prostate on digital rectal exam.

35. A 32-year-old man has azoospermia. Y chromosomal microdeletion assay reveals AZFb and AZFc deletions. The next step is:

A. adoption.
B. clomiphene citrate.
C. recombinant FSH.
D. testis biopsy.
E. microsurgical testis sperm extraction.

36. A 23-year-old man is referred for treatment after a left trans-scrotal orchiectomy. Pathology shows an embryonal cell carcinoma mixed with elements of seminoma. AFP, beta-hCG, and chest x-ray are normal. No inguinal lymph nodes are palpable. In addition to excision of the left spermatic cord, treatment should include:

A. bilateral superficial inguinal lymph node dissection.
B. left superficial inguinal lymph node dissection.
C. biopsy of left sentinel inguinal node.
D. radiation of left inguinal nodes.
E. observation of inguinal nodes.

37. Hyperacute rejection of a renal allograft following transplantation:

A. is rapidly reversible by administration of high dose steroids.
B. cannot be predicted by microlymphocytoxicity cross match.
C. usually occurs between seven to ten days from transplantation.
D. is characterized by initial polyuria for 48-72 hours followed by ongoing oliguria.
E. is mediated by preformed antibodies.

38. A 27-year-old spinal cord injured man who performs CIC four times a day has new onset of malodorous urine and suprapubic discomfort. After one week of culture-specific oral antibiotic therapy, his symptoms do not improve. The next step is repeat urine culture and:

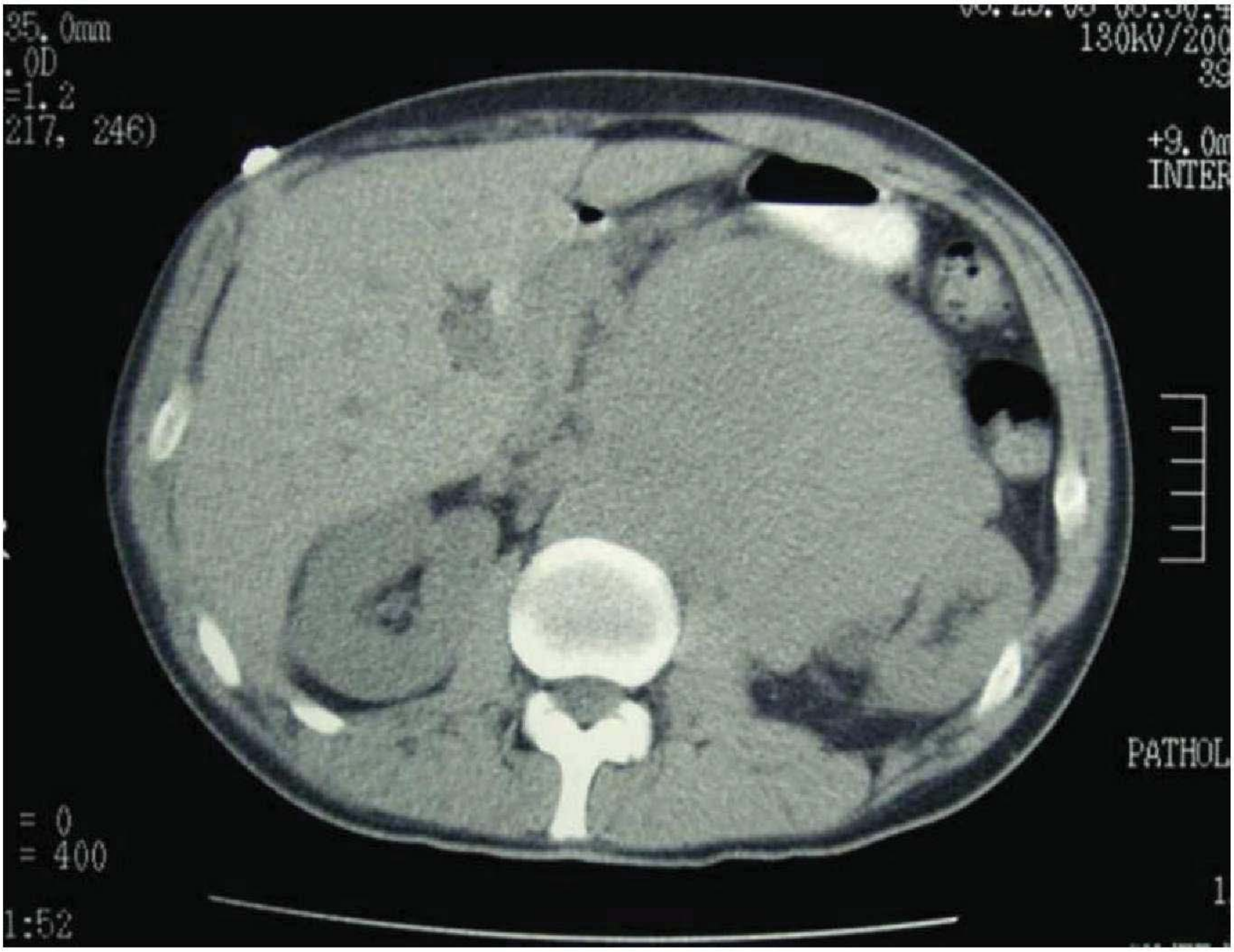
A. observation.
B. increase frequency of CIC.
C. suprapubic catheterization.
D. abdominal and pelvic CT scan.
E. parenteral aminoglycoside and cephalosporin.

39. The American Society of Therapeutic Radiology and Oncology (ASTRO) definition of PSA failure following radiation therapy is defined as:

A. any PSA level of > 4.0 ng/ml.
B. one rise in PSA above post-treatment nadir.
C. one rise in PSA above post-treatment nadir at one year following treatment.
D. two consecutive rises in PSA above post-treatment nadir.
E. three consecutive rises in PSA above post-treatment nadir.

40. A 28-year-old man underwent right radical orchiectomy for a pure seminoma. CXR and serum tumor markers were negative. Initial abdominal CT scan is shown in the first exhibit. Repeat CT scan immediately after three cycles of PEB chemotherapy is shown in the second exhibit. The next step is:

A. repeat CT scan in three months.
B. bilateral RPLND.
C. salvage chemotherapy.
D. retroperitoneal radiation therapy.
E. excision of the residual mass.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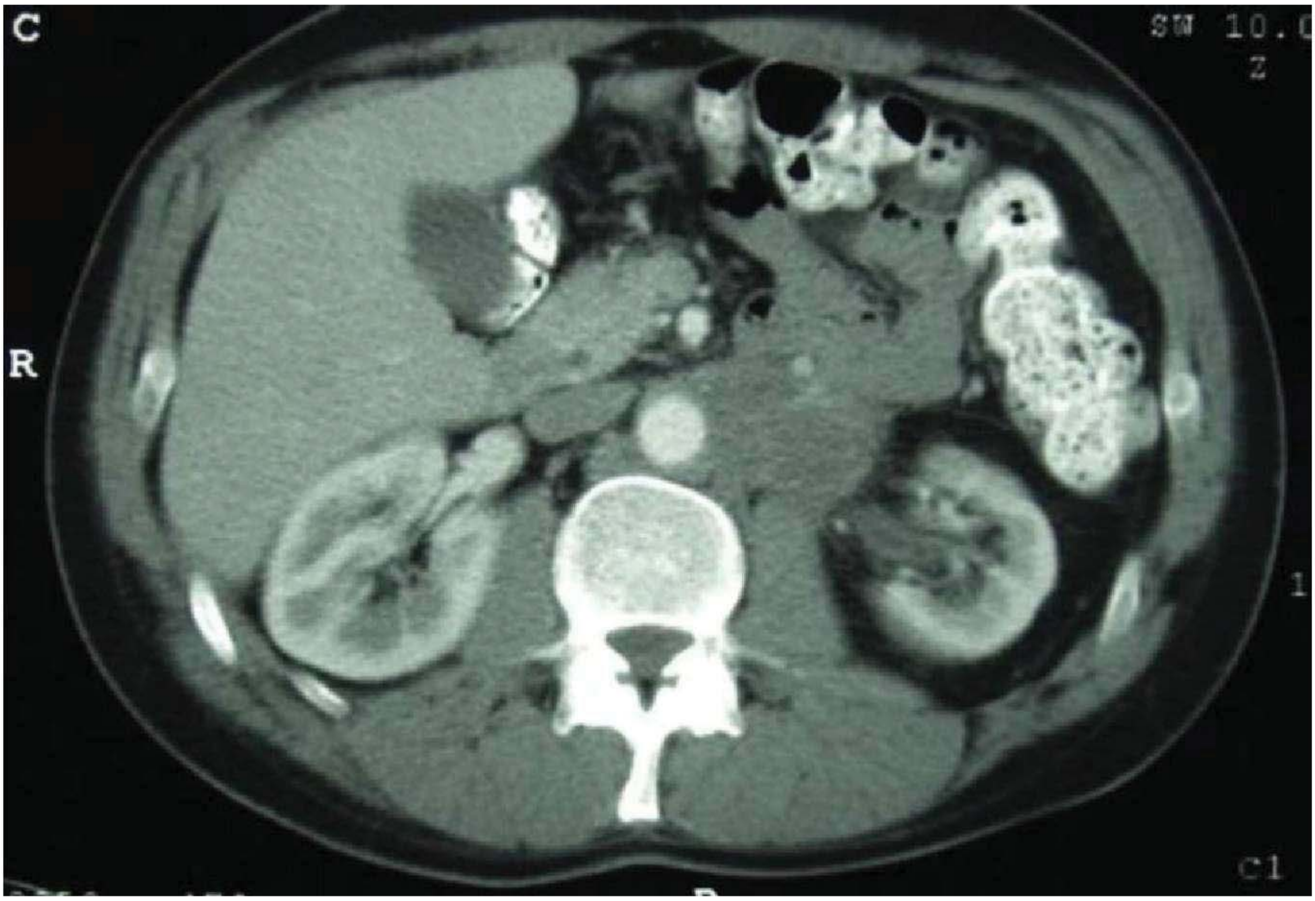
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41. A 50-year-old woman experienced two UTIs over the last year that were effectively treated with antibiotics. She again becomes symptomatic, and a urine culture reveals Proteus mirabilis. After initiating culture-specific antibiotics, the next step is:

A. suppressive antibiotics for three to six months.
B. non-contrast abdominal and pelvic CT scan.
C. no intervention if antibiotic treatment is successful.
D. cystoscopy.
E. acetohydroxamic acid.

42. The round ligament:

A. lies in the base of the broad ligament.
B. carries with it the vascular supply of the uterus.
C. carries with it the vascular supply of the ovaries.
D. connects to the upper part of the uterus.
E. penetrates the femoral ring to lie within the labia.

43. A 54-year-old African-American male with metastatic TCC of the bladder complains of penile pain following sexual relations. Physical examination reveals an indurated right corporal body. Corporal blood gas analysis reveals pH 7.3, pO_2 40 mmHg, pCO_2 35 mmHg. The most likely diagnosis is:

A. ischemic priapism.
B. penile fracture.
C. Peyronie's disease.
D. malignant infiltration of corpora cavernosa.
E. non-ischemic priapism.

44. A 28-year-old woman has acute left flank pain, nausea, vomiting, and fever. WBC is 17,000 /mm^3. CT scan with and without contrast shows high grade hydronephrosis due to a 20 mm proximal ureteral stone. Urine is sent for culture. The pain has now subsided. The next steps are broad spectrum antibiotics and:

A. discharge home with follow-up appointment.
B. observation.
C. stent placement.
D. percutaneous nephrostomy.
E. ureteral stent and SWL within 24 hours.

45. An eight-year-old uncircumcised boy has previously undergone internal urethrotomy of a urethral stricture. The stricture recurs after ten months. Evaluation reveals a 2 cm bulbar stricture. The next step is:

A. staged urethroplasty.
B. pedicle-flap urethroplasty.
C. repeat internal urethrotomy.
D. primary excision and end to end anastomosis.
E. urethral dilation followed by CIC.

46. A 32-year-old woman has a two year history of hypertension treated with a diuretic. BP is 150/95, sodium 135 mEq/l, creatinine 0.8 mg/dl and potassium 2.7 mEq/l. The most likely diagnosis is:

A. essential hypertension.
B. aldosteronoma.
C. adrenal hyperplasia.
D. fibromuscular dysplasia.
E. Bartter's syndrome.

47. A 45-year-old otherwise healthy woman has mild left CVA tenderness, bacteruria, and a temperature of 102° F. She is able to take oral fluids. The next step is urine culture and:

A. inpatient I.V. antibiotic therapy.
B. abdominal and pelvic CT scan.
C. renal ultrasonography.
D. outpatient therapy with oral nitrofurantoin.
E. outpatient therapy with an oral fluoroquinolone.

48. A two-year-old boy undergoes a left inguinal exploration for a nonpalpable testis. At the internal ring, the vas deferens is noted to end blindly. The next step is:

A. close.
B. close, then perform transumbilical laparoscopy.
C. explore peritoneal cavity.
D. explore the retroperitoneum.
E. close, then obtain a CT scan.

49. Tyrosine kinase inhibitors are effective in patients with metastatic RCC. The function of tyrosine kinases is to:

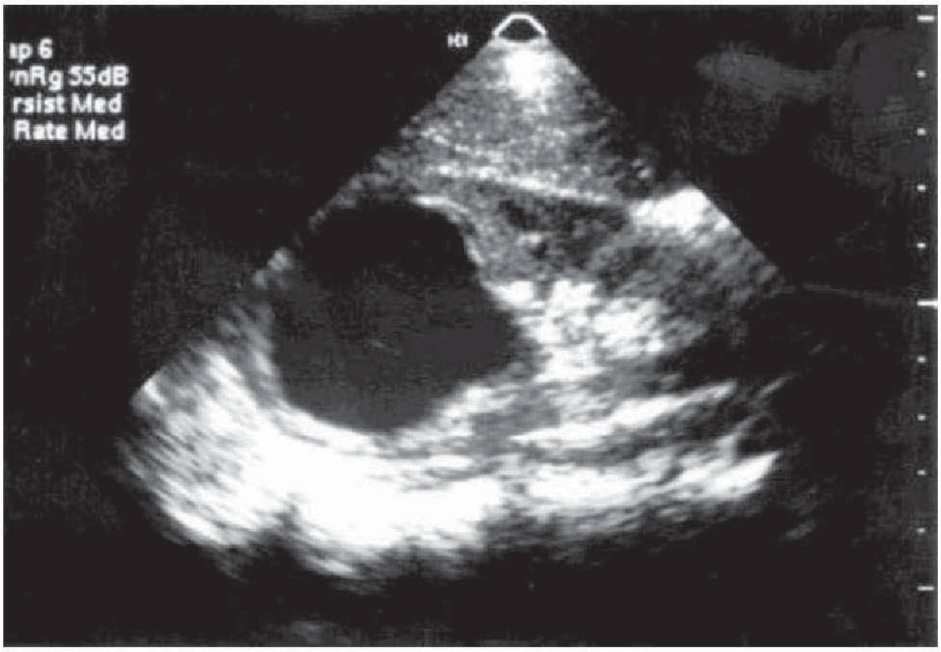
A. eliminate free radicals.
B. initiate the cell cycle.
C. produce new proteins.
D. manipulate the cytoskeleton.
E. phosphorylase intracellular proteins.

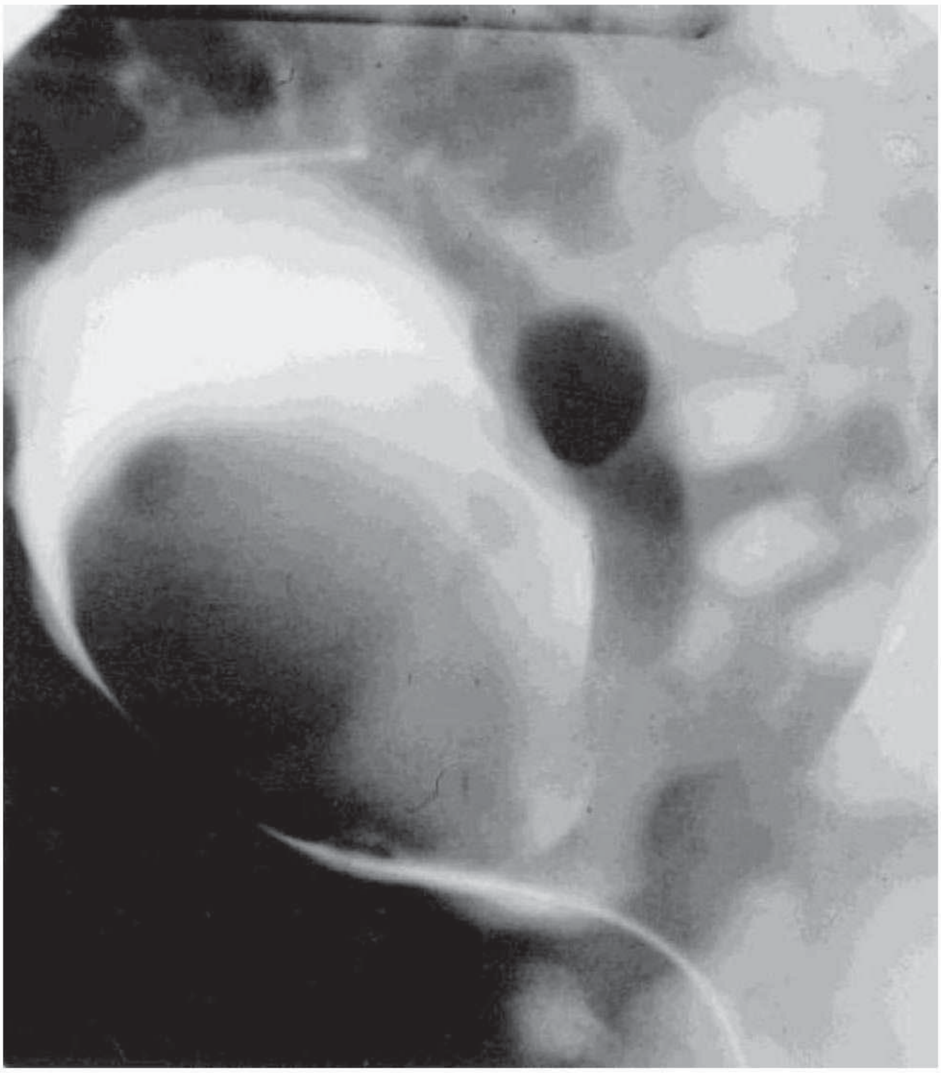
50. A 12-year-old boy has severe dysuria and hematuria. Ultrasound shows a bladder mass and mild right hydronephrosis. Urine culture is sterile. Cystoscopy shows a diffuse, erythematous, bullous mass at the bladder base. Biopsy shows intense inflammation, granulomatous reactions and an eosinophilic infiltrate. The best management is:

A. laser fulguration.
B. corticosteroids.
C. long-term antibiotics.
D. TUR of lesion.
E. cystectomy and diversion.

51. A four-month-old girl has acute pyelonephritis. She remains febrile after four days of I.V. antibiotics. An ultrasound of the right kidney and VCUG are shown in the exhibits. The next step is:

A. bladder biopsy.
B. partial nephrectomy.
C. endoscopic incision.
D. ureteroneocystostomy.
E. vesicostomy.





52. Compared to other antihypertensive medications, doxazosin when administered to men with hypertension and cardiac risk factors for the treatment of both hypertension and LUTS was associated with a higher risk of:

A. myocardial infarction.
B. congestive heart failure.
C. erectile dysfunction.
D. dizziness.
E. ejaculatory dysfunction.

53. A 50-year-old woman has right flank pain and hematuria. CT urogram shows a ureteral filling defect. She undergoes ureteroscopic removal of a fibroepithelial polyp. The next step is:

A. follow-up ureteroscopy in three months.
B. follow-up imaging.
C. urine cytology.
D. partial ureterectomy.
E. radical nephroureterectomy.

54. The renal cystic condition that arises prior to formation of the nephron is:

A. autosomal recessive polycystic kidney disease.
B. autosomal dominant polycystic kidney disease.
C. medullary sponge kidney.
D. multicystic kidney disease.
E. juvenile nephronophthisis.

55. Cystoscopy during a mid-urethral polypropylene sling procedure reveals the trocar entering and exiting the bladder along the right anterior bladder wall. Following removal of the trocar and bladder drainage, the next step is:

A. abort procedure and perform transabdominal bladder closure.
B. abort procedure and perform transvaginal bladder closure.
C. abort procedure and place suprapubic cystostomy tube.
D. Burch colposuspension
E. reinsert mid-urethral polypropylene sling trocar.

56. A 38-year-old-woman has moderate right flank pain. CT scan shows delayed filling of a right upper pole anterior calyceal diverticulum containing an 8 mm stone. The diverticular neck is not well-visualized. The best treatment option is:

A. observation.
B. SWL.
C. ureteroscopy, incision of the diverticular neck and laser lithotripsy.
D. percutaneous nephrostolithotomy and dilation of the infundibular neck.
E. laparoscopic ablation of calyceal diverticulum and stone removal.

57. How many micrograms per ml are contained in a solution of 1:100,000 epinephrine:

A. 0.1.
B. 1.0.
C. 2.5.
D. 5.
E. 10.

58. Stimulation of T cells by dendritic cells:

A. is restricted to the Class I MHC (major histocompatibility complex).
B. causes T cell differentiation into plasma cells.
C. is suppressed by TNF (tumor necrosis factor).
D. is augmented by blockade of the T cell receptor.
E. produces interleukins.

59. A patient elects SWL for treatment of a symptomatic, partially obstructing radiopaque 7 mm proximal ureteral calculus. Optimal treatment is:

A. push back of the stone into the renal pelvis prior to SWL.
B. placement of a stent along side the stone prior to SWL.
C. placement of a nephrostomy tube prior to SWL.
D. in situ SWL treatment.
E. placement of a ureteral catheter to the level of the stone.

60. A 12-year-old prepubertal boy has severe right scrotal pain one day after being kicked in the groin. There is a blue area over the superior portion of the testis, but the examination is difficult due to a hydrocele. Urinalysis is normal. The next step is:

A. immediate exploration.
B. scrotal ultrasound with Doppler.
C. scrotal nuclear scan.
D. manual detorsion and delayed fixation.
E. observation, anti-inflammatory medications.

61. A 36-year-old man develops recurrent renal calculi. He has normal serum BUN, creatinine, and calcium levels. He is asked to collect a 24-hour urine specimen for chemical analysis. The finding most likely to indicate whether or not the collection is complete is:

A. volume.
B. creatinine content.
C. calcium sodium ratio.
D. calcium creatinine ratio.
E. normal glomerular filtration rate.

62. A urologist sustains a needle stick injury while operating on an HIV positive individual. HIV antibody testing of the urologist should continue for:

A. six weeks.
B. three months.
C. six months.
D. nine months.
E. one year.

63. A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis on a freshly voided urine specimen collected three hours later reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal ultrasound is normal. The next step is:

A. cystoscopy.
B. CT urogram.
C. urinary myoglobin.
D. urinary calcium/creatinine ratio.
E. urinalysis 72 hours later.

64. The symptom complex of orthostatic hypotension, anhidrosis, detrusor overactivity, denervation of the external sphincter, and a bladder neck that is open at rest best describes patients with:

A. autonomic dysreflexia.
B. diabetic neuropathy.
C. multiple sclerosis.
D. multiple system atrophy (Shy-Drager syndrome).
E. Parkinson's disease.

65. A 46-year-old woman with a history of nephrolithiasis undergoes a radical hysterectomy and sustains a left ureteral injury. Preoperative serum creatinine is 0.9 mg/dl. Intraoperative urologic consultation reveals that the distal 9 cm of the left ureter is devascularized. The next step is:

A. nephrectomy.
B. ileal interposition.
C. autotransplantation.
D. transureteroureterostomy.
E. psoas hitch with a Boari flap.

66. If the inferior mesenteric artery is ligated, which of the following arteries maintains blood supply to the rectum:

A. superior mesenteric.
B. ileocolic.
C. middle sacral.
D. external iliac.
E. hypogastric.

67. A 54-year-old man with hypertension and a creatinine of 1.7 mg/dl is started on an angiotensin converting enzyme inhibitor. After two weeks, the creatinine is unchanged, but hypertension persists and a diuretic is added. Four days later, the creatinine is 2.5 mg/dl. The best next test for evaluation of renal insufficiency is:

A. peripheral renin measurement.
B. renal vein renin measurements.
C. MR angiography.
D. captopril stimulated peripheral renin.
E. captopril renography.

68. During gated SWL, shock wave generation is triggered by:

A. P wave.
B. heart rate.
C. QRS complex.
D. ST interval.
E. T wave.

69. A 30-year-old manic depressive man is seen for evaluation of polyuria (12 liters/24 hr). The serum osmolality is 270 mOsm/l and the urine osmolality is 140 mOsm/l. The most likely cause is:

A. nephrogenic diabetes insipidus.
B. central diabetes insipidus.
C. psychogenic polydipsia.
D. lithium therapy.
E. diabetes mellitus.

70. The onset of hypertension occasionally seen in acute unilateral ureteral obstruction is primarily due to:

A. increased sodium absorption.
B. decreased sodium absorption.
C. nephron loss.
D. decreased renal blood flow.
E. volume expansion.

71. A 27-year-old woman in the seventh week of pregnancy has right flank pain. Ultrasonography demonstrates a 5 mm calculus at the right UPJ. Urine culture is negative. The next step is:

A. hydration and analgesics.
B. stone protocol CT scan.
C. ureteral stent.
D. percutaneous nephrostomy.
E. SWL.

72. A six-week-old boy has a large, palpable, right abdominal mass. Ultrasonography demonstrates a fluid-filled mass with multiple cystic lucencies. A renal scan shows no uptake of the right kidney and a normal left kidney. He has moderate respiratory distress and an elevated right hemidiaphragm. The most appropriate therapy is:

A. right nephrectomy.
B. percutaneous aspiration of cysts.
C. cystoscopy and right retrograde pyelogram.
D. right pyeloplasty.
E. observation.

73. A 32-year-old woman undergoes urodynamic testing two weeks following a complete C6 spinal cord injury. Prior to her accident she had stress incontinence. She has had an indwelling catheter since her accident. The expected urodynamic finding is:

A. detrusor hypocontractility.
B. detrusor overactivity with external sphincter synergy.
C. detrusor overactivity with external sphincter dyssynergy.
D. poor bladder compliance.
E. normal bladder function during filling and stress incontinence.

74. A 36-year-old woman with a horseshoe kidney has a symptomatic 1.8 cm left lower calyceal stone. The next step is:

A. SWL.
B. open nephrolithotomy.
C. ureteroscopic stone extraction.
D. ureteral stent and SWL.
E. percutaneous nephrolithotomy.

75. Thiazide diuretics are:

A. useful in treating hypercalcemia.
B. contraindicated in calcium nephrolithiasis.
C. specifically indicated in idiopathic hypercalciuria.
D. inhibitors of sodium and chloride reabsorption in the collecting duct.
E. able to increase both renal blood flow and GFR.

76. A 30-year-old woman with slowly progressive multiple sclerosis has urinary frequency, urgency, and incontinence. PVR is 800 ml. Three months after starting CIC, she complains of recurrent incontinence associated with an acute exacerbation of her multiple sclerosis requiring steroids. The incontinence is most likely due to:

A. non-compliance with catheterization.
B. detrusor-sphincter dyssynergia.
C. neurogenic detrusor overactivity.
D. overflow incontinence.
E. idiopathic detrusor overactivity.

77. A 37-year-old woman with von Hippel-Lindau disease has a 4 cm upper pole renal cell carcinoma. Imaging studies demonstrate a small thrombus in the upper pole renal vein. Metastatic evaluation and the contralateral kidney are normal. The preferred management is:

A. tumor angioinfarction and partial nephrectomy.
B. cryoablation.
C. in situ partial nephrectomy and thrombectomy.
D. radical nephrectomy.
E. ex vivo partial nephrectomy and autotransplant.

78. An 11-year-old boy with spina bifida is scheduled for bladder augmentation and implantation of an artificial urinary sphincter. Infection or erosion are more common if sphincter implantation is performed:

A. prior to bladder augmentation.
B. following bladder augmentation.
C. simultaneous with augmentation.
D. with sigmoid enterocystoplasty.
E. in an area of previous surgery.

79. A 55-year-old man with post-prostatectomy incontinence underwent placement of an artificial urinary sphincter with good results for 18 months. He now complains of recurrent incontinence. Examination of the device, and x-rays show normal sphincter cycling. Cystoscopy reveals no cuff erosion. The next step is:

A. surgical exploration for repair or replacement.
B. deactivate device for a two month trial period.
C. urodynamics.
D. alpha-blocker.
E. anticholinergic medication.

80. The predominant subtype of human papillomavirus (HPV) associated with squamous cell carcinoma of the penis is:

A. HPV-30.
B. HPV-11.
C. HPV-6.
D. HPV-16.
E. HPV-18.

81. In a patient with an absent right kidney and a left pelvic kidney, the right adrenal is:

A. absent and the left is adjacent to the upper pole of the kidney.
B. absent and the left is in the normal anatomic position.
C. in the normal anatomic position and the left is adjacent to the upper pole of the kidney.
D. in the normal anatomic position and the left is in the normal anatomic position.
E. in the normal anatomic position and the left is absent.

82. Size and function of the involved kidney are best preserved in:

A. atherosclerosis.
B. medial fibroplasia.
C. intimal fibroplasia.
D. Takayasu's arteritis.
E. perimedial fibroplasia.

83. A 65-year-old man has diffuse CIS of the bladder. Transurethral prostatic biopsy and CT urogram are normal. Intravesical BCG results in temporary severe dysuria, frequency, and suprapubic pain despite isoniazid prophylaxis and anticholinergic medication. The next step is:

A. premedicate with prednisone; continue BCG.
B. mitomycin C.
C. premedicate with rifampin; continue BCG.
D. doxorubicin.
E. radical cystoprostatectomy.

84. A six-year-old girl has a one week history of marked urinary frequency and urgency. Physical exam is normal and her urinalysis and culture are normal. The next step should be:

A. renal/bladder ultrasound.
B. CMG.
C. CBC with eosinophil count.
D. VCUG.
E. observation.

85. 5-alpha-reductase deficiency is associated with:

A. poorly differentiated Wolffian structures.
B. poorly differentiated Mullerian structures.
C. gynecomastia.
D. elevated concentration of testosterone at puberty.
E. elevated dihydrotestosterone:testosterone ratio.

86. A 40-year-old woman has a pelvic abscess secondary to perforated sigmoid diverticulitis. The abscess is drained and a colostomy is performed. Subsequently, the sigmoid is resected and the colostomy is closed. One year later she undergoes excision of a large serous cyst of the left ovary. On the third postoperative day, urine begins to drain from the Penrose drain site. The surgical specimen is reported to include a 5 cm segment of ureter. An IVP shows a normal right kidney and ureter. The left collecting system reveals slight hydronephrosis and hydroureter down to L-5. The most appropriate treatment is:

A. left nephrectomy.
B. transureteroureterostomy.
C. interposition of an ileal segment.
D. ureteroureterostomy.
E. autotransplantation of the left kidney to the right pelvis.

87. A four-month-old boy undergoes left radical orchiectomy for a testicular mass. Pathology reveals a yolk sac tumor confined to the testis. CT scans of the chest and abdomen are negative. Preoperative serum AFP was 500 ng/ml. Two months later, serum AFP is 25 ng/ml. The next step is:

A. modified RPLND.
B. combination chemotherapy.
C. scrotal ultrasound.
D. surveillance.
E. retroperitoneal lymph node sampling.

88. Sperm capacitation is induced by:

A. prostatic fluid.
B. epididymal enzymes.
C. follicular fluid.
D. seminal vesicle fluid.
E. acrosin.

89. A 48-year-old male undergoes partial nephrectomy for a 3 cm renal mass. His flank drain is removed on the third postoperative day. Seven days later he has clear fluid dripping from the flank drain site. He is otherwise asymptomatic. CT scan demonstrates a 5 cm by 10 cm fluid collection adjacent to the kidney with extravasation of contrast from the collecting system. The next step is:

A. observation.
B. urethral catheter.
C. percutaneous drainage of fluid collection.
D. percutaneous nephrostomy.
E. ureteral stent.

90. The appropriate maintenance I.V. fluid for a 14 kg child is:

A. 25 ml/hr of 1/2 NS.
B. 50 ml/hr of 1/4 NS.
C. 50 ml/hr of NS.
D. 75 ml/hr of 1/4 NS.
E. 75 ml/hr of 1/2 NS.

91. A 32-year-old man with glomerulonephritis needs a kidney transplant. The probability of a sibling being an HLA identical match is:

A. 0%.
B. 10%.
C. 25%.
D. 50%.
E. 75%.

92. The ileal orthotopic neobladder is contraindicated in patients with:

A. a solitary kidney.
B. regional ileitis.
C. prior pelvic radiotherapy.
D. prior sigmoidectomy.
E. hydronephrosis.

93. A 38-year-old woman with extensive prior pelvic radiation has a long left distal ureteral stricture. At the time of psoas hitch and ureteral reimplant, an omental wrap is planned. The vascular supply of the omentum is most reliably based upon which artery:

A. splenic.
B. gastroduodenal.
C. right gastroepiploic.
D. short gastric.
E. left gastroepiploic.

94. The best treatment to decrease total body potassium in a patient with acute renal failure and a serum potassium of 6.7 mEq/l is:

A. insulin and glucose.
B. bicarbonate.
C. calcium gluconate.
D. normal saline.
E. sodium polystyrene sulfonate (Kayexalate).

95. A 50-year-old woman has irritative and obstructive voiding symptoms and urge incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H_2O, residual urine of 150 ml, a silent external sphincter, minimal opening of the bladder neck during voiding, and no cystocele. Cystoscopy is normal. The next step is:

A. anticholinergic therapy.
B. biofeedback.
C. urethral dilation.
D. alpha-blocker therapy.
E. transurethral incision of bladder neck.

96. A seven-year-old girl has urgency, frequency, and diurnal enuresis. She is wet every day, requiring clothes changes twice daily. Physical exam and urinalysis are normal. She is placed on oxybutynin 5 mg bid and timed voiding. She returns two weeks later and reports no change in the diurnal enuresis. The next step is:

A. MRI scan of the lumbosacral spine.
B. add imipramine.
C. videourodynamics.
D. voiding diary.
E. urethral dilation.

97. A 66-year-old man is undergoing implantation of a semi-rigid penile prosthesis. During dilation of the corpora, blood is noted at the urethral meatus and a tear is seen in the distal urethra. The best management is:

A. abort implantation and place urethral catheter.
B. abort implantation and place suprapubic tube.
C. continue implantation and place urethral catheter.
D. continue implantation and repair urethra.
E. continue implantation and place suprapubic tube.

98. The benefit of mitotane for the treatment of patients with adrenocortical carcinoma is:

A. neoadjuvant, where reduction of tumor size facilitates surgical resection.
B. palliative, relieving endocrine-related symptoms.
C. neoadjuvant, for prevention of local recurrence.
D. adjuvant, for prevention of local recurrence.
E. neoadjuvant, for improving survival.

99. A 25-year-old asymptomatic Caucasian woman has a blood pressure of 220/120. Her blood pressure at age 23 was 120/70. The most likely cause of her hypertension is:

A. essential hypertension.
B. polycystic kidney disease.
C. primary aldosteronism.
D. pheochromocytoma.
E. renovascular disease.

100. During implantation of an artificial urinary sphincter in a man, the most common intraoperative injury is to the:

A. urethra during dissection of the bulbo-spongiosus muscle.
B. urethra at the attachment to the corporal bodies.
C. bladder during reservoir placement.
D. femoral vessels during tube routing.
E. spermatic cord during pump placement.

101. A 57-year-old man develops fever, nausea and increasing abdominal pain seven days following a laparoscopic nephrectomy. Despite bowel rest and antibiotics, he develops worsening symptoms. A KUB reveals free air in the abdominal cavity with dilated loops of small bowel. The next step is:

A. abdominal ultrasound.
B. barium enema.
C. CT scan of the abdomen with I.V. contrast.
D. CT scan of the abdomen with oral contrast.
E. immediate surgical exploration.

102. A six-month-old boy has microscopic hematuria. His calcium to creatinine ratio is 0.6. The best treatment is:

A. double fluid intake.
B. thiazides.
C. ACE inhibitor.
D. potassium citrate.
E. observation.

103. A 28-year-old C-6 quadriplegic man with recurrent urosepsis cannot perform CIC and has unreliable home help. He has failed two external sphincterotomies and developed urethral erosion following indwelling urethral catheter drainage. The best treatment is:

A. repeat external sphincterotomy.
B. vesicostomy.
C. ileal conduit urinary diversion.
D. continent urinary diversion.
E. ileovesicostomy.

104. A 23-year-old man develops chylous ascites after RPLND. He is initially managed with a medium chain triglyceride diet, and for the last two weeks, with total parenteral nutrition. He is still requiring periodic paracentesis four weeks postoperatively. The next step is:

A. continue current management.
B. add somatostatin.
C. laparoscopic ligation of the source.
D. open surgical ligation of the source.
E. peritoneovenous shunt.

105. The consequence of DDAVP when used to treat nocturnal enuresis is:

A. increased urine osmolality.
B. decreased urinary sodium.
C. down-regulation of vasopressin receptors.
D. mild hyponatremia.
E. mild hyperkalemia.

106. The most important area of the brain for sexual drive and erection is the:

A. medial pre-optic area.
B. parahippocampus.
C. caudate nucleus.
D. frontal lobe.
E. parietal lobe.

107. When using bisphophonates in men, which of the following should be prescribed:

A. potassium chloride.
B. calcium and vitamin D.
C. a low oxalate diet.
D. a high protein diet.
E. hydrocortisone.

108. Unilateral renal agenesis is associated with an increased incidence of:

A. ipsilateral anorchia.
B. two vessel umbilical cord.
C. ipsilateral adrenal agenesis.
D. Müllerian duct abnormalities.
E. urethral anomalies.

109. Hydroureteronephrosis of pregnancy is primarily caused by increased:

A. estrogen.
B. progesterone.
C. urine output.
D. intravesical pressure.
E. uterine size.

110. A 51-year-old woman is scheduled to undergo abdominal sacrocolpopexy and paravaginal and rectocele repair for complete vaginal vault prolapse. She denies having stress incontinence. The following procedure should be performed at the same time:

A. none.
B. Kelly plication.
C. mid-urethral sling.
D. Burch colposuspension.
E. pubovaginal sling.

111. A 14-year-old boy has a painless mass above the right testis. The mass is removed through the groin and pathology reveals a completely resected paratesticular rhabdomyosarcoma. His abdominal CT scan is normal. The next step is:

A. repeat CT scan in three months.
B. adjuvant chemotherapy with doxorubicin and alkylating agents.
C. retroperitoneal radiation.
D. ipsilateral retroperitoneal lymph node dissection.
E. bilateral retroperitoneal lymph node dissection.

112. A 26-year-old diabetic man has a progressively decreasing urinary stream secondary to a long-standing bulbar urethral stricture. He has a two week history of high fevers and chills. Physical examination reveals perineal crepitance, erythema and a palpable bladder. The next step is antibiotics and:

A. diverting colostomy and bladder drainage.
B. hyperbaric oxygen.
C. debridement and bladder drainage.
D. CT-directed drainage.
E. bladder drainage.

113. A 62-year-old man with a normal DRE and PSA of 1.3 ng/ml begins testosterone supplementation for symptomatic hypogonadism. Six months later his PSA is 2.8 ng/ml, the DRE remains unchanged and the serum testosterone is 550 ng/dl. The next step is:

A. repeat PSA in six months.
B. administer testosterone every other day.
C. stop testosterone supplementation.
D. finasteride.
E. prostate biopsy.

114. A three-year-old boy has a palpable abdominal mass. Ultrasound and CT scan demonstrate a multilocular cyst. The next step is:

- A. repeat ultrasound in one year.
- B. cyst aspiration.
- C. genetic testing.
- D. tumor resection.
- E. MRI scan.

115. A 53-year-old man with a history of cyclophosphamide chemotherapy has clot urinary retention. He continues to require daily blood transfusions despite cystoscopic and catheter clot evacuation, and subsequent three-way urethral catheter irrigations. Alum irrigations and PGE2 instillations have been unsuccessful. A cystogram shows no VUR. The next step is:

- A. percutaneous nephrostomy drainage.
- B. 10% formalin bladder irrigations.
- C. 10% formaldehyde bladder irrigations.
- D. cystectomy.
- E. 1% formalin bladder irrigations.

116. A 70-year-old man develops hematuria 18 months following a radical cystectomy and orthotopic neobladder. A urine cytology is positive for malignant cells. On cystoscopy, a focal area of erythema in the posterior urethra reveals CIS. The next step is:

- A. intraurethral BCG.
- B. segmental urethrectomy.
- C. segmental urethrectomy with perineal urethrostomy.
- D. total urethrectomy.
- E. radiation therapy.

117. Prenatal ultrasonography of a 22-week-male fetus shows bilateral hydroureteronephrosis and a thick-walled bladder. The finding that supports early intervention is:

- A. hyperechoic kidneys.
- B. oligohydramnios.
- C. renal cortical cysts.
- D. abnormal urine electrolytes.
- E. perinephric urinoma.

118. A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:

A. radical eschar debridement.
B. split thickness skin grafts.
C. hyperbaric oxygen therapy.
D. remove urethral catheter and insert suprapubic tube.
E. observe for wound granulation.

119. A 73-year-old man with localized prostate cancer develops acute urinary retention following interstitial brachytherapy. A factor associated with an increased risk for this complication is:

A. pre-treatment PSA.
B. prostate volume.
C. patient age.
D. Gleason score.
E. choice of radioisotope.

120. The medication with neuroregenerative activity after radical prostatectomy is:

A. erythropoietin.
B. prostaglandin E1.
C. sildenafil.
D. tadalafil.
E. gabapentin.

121. The definitive diagnosis of genital herpes simplex virus infection requires:

A. viral culture.
B. viral typing.
C. punch biopsy.
D. serological testing.
E. cytologic examination.

122. Compared to a hand-sewn bowel anastomosis, a stapled anastomosis has:

A. a lower reoperative rate.
B. a higher fistula rate.
C. a reduced operative time.
D. a lower rate of prolonged ileus.
E. a higher rate of obstruction.

123. A three-year-old phenotypic girl undergoes an abdominal and pelvic ultrasound for intermittent abdominal pain. No uterus is seen on the ultrasounds. Right and left gonads are identified in their respective inguinal canal. Karyotype is 46 XY. The next best step is:

A. genetic sequencing of patient's androgen receptor gene.
B. serum for LH, FSH and serum testosterone.
C. serum for Müllerian inhibitory factor.
D. serum for 17-hydroxyprogesterone.
E. gonadal biopsy.

124. Calcium oxalate calculi appear on MRI scan as:

A. high intensity T1 weighted image.
B. low intensity T2 weighted image.
C. low core intensity image.
D. poorly visualized image.
E. bright bone-like signal image.

125. The immune mechanisms involved in BCG immunotherapy for CIS of the bladder include:

A. granuloma-like cellular foci in the bladder wall.
B. specific binding of BCG to e-cadherin.
C. specific binding of BCG to epidermal growth factor receptors.
D. development of non-specific cystitis.
E. T-helper type 2 cytokine response.

126. A one-year-old 10 kg boy with spina bifida is maintained on oxybutynin 2 mg tid, and CIC every four hours. His ultrasound demonstrates progressive bilateral hydronephrosis, and a diuretic scan performed with a catheter in the bladder reveals no evidence of ureteral obstruction. A CMG demonstrates a detrusor pressure of 40 cm H_2O at a volume of 35 ml and a detrusor LPP of 58 cm H_2O at a volume of 50 ml. The next step is:

A. increase oxybutynin.
B. change to tolterodine.
C. decrease catheterization interval.
D. cutaneous vesicostomy.
E. enterocystoplasty.

127. A 27-year-old HIV positive man has acute left flank pain. Urinalysis reveals microscopic hematuria. Noncontrast helical CT scan demonstrates left hydroureteronephrosis without evidence of stones. The medication that most likely caused his hydronephrosis is:

A. isoniazid.
B. rifampin.
C. indinavir.
D. trimethoprim-sulfamethoxazole.
E. zidovudine (AZT).

128. A long-term toxicity of cisplatin-based chemotherapy for testis cancer is:

A. diabetes.
B. arthritis.
C. scleroderma.
D. obesity.
E. coronary artery disease.

129. A 16-year-old boy has a complete T-12 spinal cord injury. After spinal shock resolves, he is likely to have:

A. no erection, poor ejaculation.
B. no erection, vibratory ejaculation.
C. reflexogenic erection, vibratory ejaculation.
D. reflexogenic erection, poor ejaculation.
E. psychogenic erection, poor ejaculation.

130. A 28-year-old man is undergoing retrograde endopyelotomy for right UPJ obstruction. Immediately after making an incision on the lateral aspect of the ureter, blood fills the bladder. Clots are evacuated and vital signs remain stable. Abdominal examination reveals fullness over the right upper quadrant. The next step is:

A. exploratory laparotomy.
B. angiography with embolization.
C. observation.
D. ureteroscopy with fulguration.
E. place 14 F stent.

131. Death from prostate cancer after radical prostatectomy is associated with:

A. a post-operative PSA doubling time of > 12 months.
B. the first detectable PSA within three years of surgery.
C. a post-operative PSA rising above 2.0 ng/ml.
D. an increase in PSA > 2.0 ng/ml in the year prior to diagnosis.
E. a reduction in the ratio of free/total PSA by 10% in the year before the diagnosis.

132. A three-year-old boy has a fever of 100° F, WBC count of 17,000, and purulent umbilical drainage. A pelvic ultrasound reveals a thickened structure between the dome of the bladder and the umbilicus which contains a central 2 cm complex mass. There is no obstruction or extravasation on a VCUG. The next step is antibiotics followed by:

A. cystoscopy.
B. incision, drainage and packing.
C. excision of urachus and partial cystectomy.
D. delayed excision of urachus.
E. chemical sclerosis of the sinus tract.

133. A 32-year-old woman with Cushing's syndrome fails to suppress cortisol production during a low dose dexamethasone suppression test. Which result of a high dose dexamethasone suppression test (2 mg every six hours) establishes the diagnosis of Cushing's disease:

A. suppression of urinary 17-hydroxycorticosteroids.
B. no change in urinary 17-hydroxycorticosteroids.
C. elevation of urinary 17-hydroxycorticosteroids.
D. suppression of urinary 17-ketosteroids.
E. elevation of serum ACTH.

134. Renal medullary carcinoma is characterized by:

A. occurrence predominately in the left kidney.
B. relatively indolent clinical course.
C. a good response to cisplatin-based chemotherapy.
D. being amenable to partial nephrectomy.
E. metastatic disease at presentation.

135. Which of the following is most often elevated in nephrotic syndrome:

A. ASO titer.
B. serum albumin.
C. serum cholesterol.
D. IgA.
E. IgM.

136. Fluoroquinolone antibiotics work by:

A. inhibition of cell wall biosynthesis.
B. alteration of nucleic acid metabolism.
C. inhibition of bacterial DNA gyrase.
D. inactivation of bacterial ribosomal proteins.
E. inhibition of RNA polymerase.

137. For patients with extracapsular extension and positive surgical margins following radical prostatectomy, adjuvant radiation therapy compared to salvage radiation for a PSA recurrence is associated with:

A. lower five year PSA and clinical progression.
B. improved overall five year survival.
C. improved disease-specific survival.
D. increased incidence of urinary incontinence.
E. increased risk of rectal morbidity.

138. A 17-year-old girl with a history of an augmentation cystoplasty undergoes a pubo-vaginal sling procedure for persistent stress incontinence. On postoperative day three, she has left flank pain and increased drainage from the incision (creatinine of drainage is 9 mg/dl). A CT scan reveals new onset of left hydroureteronephrosis, left perivesical fluid collection, and CT cystogram reveals no extravasation of contrast from bladder. The next step is:

A. cystoscopy, retrograde pyelogram and stent placement.
B. percutaneous nephrostomy.
C. removal of sling.
D. open ureteral repair and removal of sling.
E. ureteroneocystostomy.

139. The hypercalcemia of sarcoidosis may be differentiated from that of primary hyperparathyroidism by administration of:

A. Vitamin D.
B. calcium gluconate.
C. prednisone.
D. sodium cellulose phosphate.
E. hydrochlorothiazide.

140. A contraindication to cytoreductive nephrectomy prior to systemic therapy in an asymptomatic patient with metastatic renal cell cancer is:

A. brain metastasis.
B. vena caval thrombus.
C. involvement of the contralateral adrenal gland.
D. sarcomatoid cell histology.
E. pulmonary metastases.

141. A seven-year-old boy with a neurogenic bladder, renal failure, and moderate acidosis is scheduled for a renal transplant. He has diurnal and nocturnal incontinence despite treatment with oxybutynin 5 mg qid. Videourodynamics reveals a bladder capacity of 120 ml with an end-filling detrusor pressure of 70 cm H_2O associated with grade 2/5 bilateral VUR, and normal uroflow curve with a 60 cc PVR. The best option is:

A. transplant into native bladder.
B. vesicostomy and transplant into native bladder.
C. bilateral nephrectomy and ureteral augmentation prior to transplant.
D. ileal augmentation prior to transplant.
E. gastrocystoplasty prior to transplant.

142. A 24-year-old man has sudden onset of bilateral scrotal pain associated with mild nausea. Six days earlier, he had seen his internist because of bilateral parotid gland swelling. On examination, the testicles are swollen and extremely tender to palpation. The most effective therapy for this condition is bed rest, scrotal elevation, and:

A. indomethacin.
B. steroids.
C. interferon.
D. estrogens.
E. gamma globulin.

143. A 52-year-old man has distal ureteral CIS resected bilaterally at the time of radical cystectomy and planned orthotopic neobladder resulting in considerable shortening of his ureters. The best neobladder option is:

A. hemi-Koch (ileal).
B. Studer (ileal).
C. Camey (ileal).
D. sigmoid.
E. Mainz (ileocolic).

144. A newborn undergoes a circumcision with a Gomco clamp. Three days later, he has two separate urinary streams. The next step is:

A. observation.
B. antibiotics.
C. testosterone cream.
D. VCUG.
E. retrograde urethrogram.

145. A 25-year-old man with AIDS has a painful, exophytic mass involving the entire length of the penile shaft dorsally. Biopsy reveals Kaposi's sarcoma. The patient has been treated with systemic chemotherapy in the past for control of similar lesions elsewhere. The most appropriate treatment of this lesion is:

A. excision and penile reconstruction.
B. laser photocoagulation.
C. topical 5-fluorouracil.
D. external radiotherapy.
E. topical liquid nitrogen.

146. A 68-year-old male with an indwelling ureteral stent develops profuse bright red blood per urethra. Angiogram reveals an arterioureteral fistula to the right common iliac artery. The best initial treatment is:

A. removal of the ureteral stent.
B. embolization of the affected artery.
C. radiologic placement of an endovascular stent.
D. ureteroureterostomy and omental wrap.
E. vascular bypass procedure and ureteral stent.

147. The obliterated umbilical artery courses:

A. posterior to the middle hemorrhoidal artery.
B. lateral to the obturator nerve.
C. medial to the seminal vesicles.
D. anterior to the ureter.
E. caudal to the ampulla of the vas deferens.

148. A 25-year-old man is admitted with renal colic and a solitary partially obstructing 4 mm left distal ureteral calculus. This is his second stone episode in three years. Full metabolic evaluation for his urolithiasis should be initiated:

A. after resumption of regular diet.
B. one week following ureteral stent placement.
C. after a third stone episode.
D. one month after stone passage.
E. immediately, provided that his urine culture is sterile.

149. A repeat prostate biopsy after an initial finding of atypical foci suspicious for carcinoma, as compared to high grade prostatic intraepithelial neoplasia (HGPIN), has:

A. a significantly higher risk of prostate cancer.
B. a significantly higher risk of high grade prostate cancer only.
C. an equivalent risk of prostate cancer.
D. a significantly lower risk of prostate cancer.
E. a significantly lower risk of high grade prostate cancer only.

150. A 17-year-old boy with bladder exstrophy and a prior history of an ileal conduit and cystectomy undergoes conversion to a continent ileocecal reservoir. Six months later, he develops steatorrhea and urolithiasis. Which bowel absorptive pattern is likely present:

	Bile salts	**Oxalate**	**Calcium**	**Vitamins A &amp; D**
A.	⇓	⇑	⇓	⇑
B.	⇑	⇑	⇓	⇑
C.	⇑	⇓	⇑	⇑
D.	⇓	⇑	⇓	⇓
E.	⇓	⇓	⇑	⇓

Question #1 ANSWER=E

Maximal water reabsorption and maximal concentrations of urinary constituents (solutes), including calcium, occur in the collecting ducts.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, pp 167-227.

Question #2 ANSWER=C

Hypocitraturia is present in > 75% of patients with renal tubular acidosis (Type 1) and associated nephrolithiasis. Osteopontin is an inhibitor of calcium oxalate crystallization, but is not a major factor in renal tubular acidosis. Hypercalciuria does occur in this setting, and may contribute to stone formation. Hyperoxaluria and hyperuricosuria are not associated with renal tubular acidosis.

Buckalew VM Jr: Nephrolithiasis in renal tubular acidosis. J UROL 1989;141:731-737.

Preminger GM, Sakhaee K, Skurla C, Pak CY: Prevention of recurrent calcium stone formation with potassium citrate therapy in patients with distal renal tubular acidosis. J UROL 1985;134:20-23.

Question #3 ANSWER=D

Obturator nerve reflex may be evoked while resecting lesions on the lower lateral wall and bladder neck area, particularly in a thin patient. This reflex results in adductor spasms of the leg, as well as inward movement of the bladder wall during resection that could result in perforation. The obturator reflex may be prevented by decreasing the cutting current and avoiding distension of the bladder during resection. If this is not effective, paralytic agents can be used during general anesthesia, or in some cases an obturator nerve block can be administered.

Tiguert R, Lacombe L, Fradet Y: Transurethral surgery of bladder tumors, in Richie JP, D'Amico (eds): UROL ONCOL. Philadelphia, Elsevier Saunders, 2005, chap 20, p 363.

Question #4 ANSWER=E

Lifelong CIC, although effective, is inappropriate if corrective surgery can restore normal voiding. Oral bethanechol has not been shown to effectively improve bladder contractility and is not indicated in the presence of bladder outlet obstruction. Alpha-blockers such as terazosin and urethral dilation are options but represent suboptimal therapy when compared to anatomic correction by urethrolysis. The ability of videourodynamics to predict surgical success and whether repeat anti-incontinence surgery should be performed at the same time as urethrolysis is controversial. Most patients however resume normal voiding and are continent without repeat surgery. If urinary retention occurs in someone undergoing a mid-urethral sling, sling incision should be undertaken much sooner.

Foster HE, McGuire EJ: Management of urethral obstruction with transvaginal urethrolysis. J UROL 1993;150:1448-1551.

Blaivas JG, Groutz A: Urinary incontinence: Pathophysiology, evaluation, and management overview, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 27, p 1043.

Herschorn S, Carr LK: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 30, p 1119.

Question #5 ANSWER=E

The clinical and radiographic findings are most consistent with renal abscess. Segmental pyelonephritis would have a normal pre-contrast study. In xanthogranulomatous pyelonephritis, a stone is usually present and the organism is most commonly an E. coli or Proteus. Given the clinical and radiographic findings, tumor is less likely.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Coburn M: Renal and perirenal abscess, in Seidmon EJ, Hanno P (eds): CURRENT UROLOGIC THERAPY, ed 3. Philadelphia, WB Saunders Co, 1994, pp 45-50.

Question #6 ANSWER=E

The urodynamic tracing provided demonstrates evidence of poor compliance as indicated by a steady rise in the detrusor pressure with filling, and intrinsic sphincter deficiency as indicated by leakage of urine with increases in abdominal pressure. Adequate treatment of the incontinence requires improving the bladder compliance and increasing outlet resistance. This is best accomplished by an augmentation cystoplasty and artificial urinary sphincter. Placement of an artificial sphincter or sling alone risks damage to the upper urinary tract and continued incontinence despite the concomitant anticholinergic treatment because of persistently poor compliance. Augmentation cystoplasty alone will not resolve the stress urinary incontinence. Transurethral collagen injection is ineffective at increasing outlet resistance and will not address the compliance abnormality.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 28, pp 1053-1068.

Question #7 ANSWER=C

Screening programs for HIV infection use a sequence of tests that start with an enzyme immunoassay (EIA) that has a sensitivity > 99%; the probability of a false-negative test result is remote. The specificity of current EIA tests is approximately 99% if repeated tests are positive. In this situation, more sensitive assays, such as a Western blot, are performed. A positive confirmatory test is considered evidence of HIV infection. The problem with indiscriminate testing is the non-zero, false-positive rate. Screening a population in which the prevalence of HIV is low will lead to the identification of more individuals who have falsely positive tests than individuals who actually have an infection. Selective screening of high-risk individuals or groups is more likely to accurately identify infected patients.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Meyer KB, Pauker SG: Screening for HIV: Can we afford the false positive rate? NEJM 1987;317:238-241.

Question #8 ANSWER=E

Coordinated relaxation of the external urinary sphincter while voiding requires intact neurons between the pontine micturition center and the sacral spinal cord. Projections from the pons to Onuf's nucleus in the sacral cord allows relaxation of the intrinsic portion of the external sphincter termed the rhabdosphincter. In addition, anterior horn cells in the sacral cord responsible for the pudendal nerve are modulated by the pons so that pelvic floor musculature (i.e. levator ani) do not contract during micturition. Interruptions of pathways between the pons and sacral spinal cord, such as with spinal cord injury and multiple sclerosis, can lead to the development of detrusor external sphincter dyssynergia. Suprapontine areas such as the cerebral cortex and cerebellum are not required for coordinated voiding, however can lead to detrusor overactivity when injured. Sympathetic innervation originates in the thoracolumbar spinal cord and is responsible for coordinating internal sphincter activity.

George NJR: Bladder and urethra: Function and dysfunction, in Weiss RM, George NJR, O'Reilly PH (eds): COMPREHENSIVE UROLOGY. London, Mosby, 2001, chap 6, pp 68-72.

Chancellor MB, Yoshimura N: Voiding function and dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 23, pp 853-855.

Question #9 ANSWER=E

The presence of invasive transitional cell carcinoma of the prostate carries a high risk of urethral recurrence and is a contraindication to orthotopic bladder replacement. All patients undergoing cystectomy should be counseled about the possibility that intra-operative findings might change the planned form of urinary diversion and all of the alternatives should be discussed prior to surgery. Of the choices listed, the continent cutaneous pouch is the best option for a patient expecting to awake with a continent diversion, although rectal pouches are also acceptable.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 108, pp 3835-3868.

Question #10 ANSWER=B

This patient has favorable risk (normal digital rectal examination, PSA <10, Gleason score < 7, and minimal core involvement) clinically localized prostate cancer. Although there is no clinical or biochemical evidence at this point of disease progression, a repeat prostate biopsy at 18 months can provide important information useful in management. This is especially true for men electing active surveillance who have a life-expectancy > 10 to 15 years and are otherwise candidates for definitive therapy. A repeat biopsy may provide information that would lead one to consider local therapy. This includes grade progression and an increase in the percentage of the biopsy specimen involved with cancer.

Carter HB: Diagnosis and staging of prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 88, pp 3055-3079

Question #11 ANSWER=C

Since the amino acids of ACTH are identical to the terminal amino acids of melanocyte stimulating hormone (MSH), over-production of ACTH results in cutaneous hyperpigmentation. Adrenal loss results in lack of negative feedback and over-production of ACTH. Pituitary failure, on the other hand, results in a lack of ACTH. Vitiligo may also be seen in these patients.

Gerber GS, Brendler CB: Evaluation of the urologic patient: History, physical examination, and urinalysis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 3, p 92.

Question #12 ANSWER=A

The CT scan shows a retained prosthesis reservoir, situated adjacent to the bladder. The reservoir should have been removed at the time of the explant. Prior to reimplantation, the reservoir should be removed as a first stage. The risk is high that the retained foreign body harbors bacteria that will secondarily infect a new prosthesis if the reservoir is left in place or is removed simultaneous with device reimplantation, even if the patient was asymptomatic. There should be at least 4-6 weeks between the reservoir explantation and placement of a new prosthesis.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 47, pp 1673-1709.

Question #13 ANSWER=C

Although all of these agents can be used to treat BPH, the only one that has demonstrated efficacy in preventing acute urinary retention and a need for surgery is finasteride. Alpha-adrenergic antagonists, in particular doxazosin, have been recently found to delay retention and need for surgery over the short-term but ultimately perform similar to placebo.

Lepor H, Lowe FC: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 39, pp 1337-1378

Question #14 ANSWER=D

Improved patency and pregnancy after vasectomy reversal are correlated with a short time interval between vasectomy and reversal. It has been demonstrated that a proximal vas segment in excess of 2.7 cm predicts the presence of vasal fluid with whole sperm. It is generally believed that the presence of a granuloma and a smaller luminal diameter are favorable, as pressure below the level of the vasectomy may be less. Testicular specimens obtained after vasectomy reveal increased thickness of the seminiferous tubules, reduction in the number of Sertoli cells and spermatids, and an increase in the cross-sectional tubular area. The presence of interstitial fibrosis has an adverse effect on post-vasovasostomy fertility.

Witt MA, Heron S, Lipshultz LI: The post-vasectomy length of the testicular vasal remnant: A predictor of surgical outcome in microscopic vasectomy reversal. J UROL 1994;151:892-894.

Belker AM, Thomas AJ, Fuchs EF, et al: Results of 1,469 microsurgical vasectomy reversals by the vasovasostomy study group. J UROL 1991;145:505-511.

Question #15 ANSWER=D

The Turnbull loop stoma is the most appropriate diversion in this obese patient with a short mesentery. There will be less tension on the mesentery as it traverses the abdominal wall and it will be easier to obtain a good stomal bud above skin level. Cutaneous ureterostomy requires a ureter dilated to at least 1 cm, thick walled and well vascularized. In adults with normal ureters there is a high incidence of stricture from ischemia of the cutaneous portion of the nondilated ureter. There is a higher incidence of ureterointestinal stricture using an antireflux technique with the transverse colon. The sigmoid colon may not be the best choice with cystectomy as some surgeons ligate the internal iliac arteries which may compromise rectal blood supply. The short mesentery would also preclude using an ileal or ileo-cecal continent reservoir.

Chechile G, Klein EA, Bauer L, Novick AC, Montie JE: Functional equivalence of end and loop ileal conduit stomas. J UROL 1992;147:582-586.

Hinman F Jr: Ileal conduit, in Hinman F Jr (ed): ATLAS OF UROLOGIC SURGERY, ed 2, Philadelphia, WB Saunders Co, 1998, section 15, pp 657-662.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3745-3788.

Question #16 ANSWER=A

Local recurrence after radical nephrectomy is rare with an incidence of 2.9%. In addition, it is associated with a poor prognosis. Patients with local recurrence treated nonsurgically have a low survival rate. In addition, the presence of synchronous metastasis is associated with a significantly lower survival rate. Best outcomes are reported in those patients treated with surgical resection for isolated local recurrence only. Other factors, including time to local recurrence, location in the ipsilateral adrenal or renal fossa, and size of local recurrence are not independently associated with a worse outcome. Overall, five year survival rates for patients with surgically resected isolated local recurrences are approximately 30%.

Bruno JJ, Snyder ME, Motzer RJ, Russo P: Renal cell carcinoma local recurrences: Impact of surgical treatment and concomitant metastasis on survival. UROL OCOL 2006;97:933-938.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, pp 2672-2731.

Question #17 ANSWER=E

Most pelvic bleeding following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization. Ligation of hypogastric arteries or veins may not be helpful and risk continued bleeding while these vessels are being identified and controlled. Intraoperative arteriography is time consuming, technically difficult, and provides poor images. The use of a MAST (medical anti-shock trousers) suit is not a proven modality in such situations.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, pp 3707-3744.

Question #18 ANSWER=A

Prostatic granulomas are recognized with increasing frequency in men following intravesical BCG therapy. Although long-term outcome is uncertain, the granulomas are generally asymptomatic and no therapy is recommended. This patient had a prior normal digital rectal exam of the prostate and his serum PSA is normal. Thus, it is unlikely he has prostate cancer and further biopsies are no more indicated in him than in any other age matched male patient.

Messing EM: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 76, pp 2732-2784.

Question #19 ANSWER=A

According to the recently released guidelines on management of benign prostatic hyperplasia (BPH) by the AUA Practice Guideline Committee, recommended components of the diagnostic algorithm for routine evaluation are history and physical examination focusing on the urinary tract, digital rectal examination and urinalysis. PSA is a diagnostic option.

AUA Practice Guidelines Committee: AUA guideline on management of benign prostatic hyperplasia (2003). Chapter 1: Diagnosis and treatment recommendations. J UROL 2003;170:530-547.

Question #20 ANSWER=E

With FSH greater than 7.6 mIU/ml and testis axis less than 4.6 cm, the probability of non-obstructive azoospermia is 89%. Neither clomiphene citrate nor HCG is effective in a patient with highly elevated LH, as clomiphene acts to increase LH secretion and HCG is an LH surrogate. Scrotal ultrasound would not reveal more than that identified on physical examination. As the pituitary is responding appropriately to low serum testosterone, MRI is not indicated. The only chance of a biological child for this patient with non-obstructive azoospermia would be testicular sperm extraction for intracytoplasmic sperm injection.

Schoor RA, Elhanbly S, Niederberger CS, Ross LS: The role of testicular biopsy in the modern management of male infertility. J UROL 2002;167:197-200.

Schlegel PN: Testicular sperm extraction: microdissection improves sperm yield with minimal tissue excision. HUM REPROD 1999;14:131-135.

Question #21 ANSWER=D

Excessive placement of clips when managing the gonadal, adrenal, or lumbar branches can severely restrict the working space available for safe placement of the endovascular stapler later in the case, when the main renal vein is addressed. Application of the stapler across a clip can lead to intraoperative or postoperative hemorrhage and must be avoided.

Gill IS, Kerbl K, Meraney AM, Clayman RV: Basis of laparoscopic urologic surgery, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 100, pp 3455-3506.

Question #22 ANSWER=C

Deep dorsal vein arterialization has been used as a revascularization surgery for young men with pure arteriogenic erectile dysfunction who have common penile or cavernosal artery occlusive disease. This procedure is associated with the unusual yet glans threatening complication of glans hyperemia. The patient presents with pain, edema and eventually skin changes including necrosis. The emergent treatment of this complication involves ligation of the arterialized vein distal to the anastomosis.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 47, p 1695.

Question #23 ANSWER=C

The transition zone surrounds the urethra and is the site of origin of BPH. Gradual enlargement of the transition zone compresses the central zone (B) and peripheral zone (A) in older men. D is the fibromuscular stroma and U is urethra.

Lepor H, Lowe FC: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 39, pp 1337-1379.

Question #24 ANSWER=A

Urethral caruncle differs from prolapse by arising from only one quadrant of the meatus, usually being covered by smooth epithelium, not being congested or ulcerated and painless. If the caruncle is ulcerated, bleeds persistently, or is painful, it merits excision to relieve symptoms and assure absence of carcinoma. For the latter reason, excisional biopsy is preferable to other treatments if intervention is required. Laser ablation is not indicated. The association of caruncle and urethral carcinoma is extremely rare, and thus, the asymptomatic non-ulcerated caruncle should be left alone.

Lynch DF Jr, Pettaway CA: Tumors of the penis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 83, pp 2945-2982.

Question #25 ANSWER=B

The most common pattern for patients with prolonged post-radical pelvic surgery voiding dysfunction is failure of bladder contraction or impaired bladder contractility, and obstruction secondary to fixed striated sphincter tone. Urodynamically, such patients most generally manifest reduced compliance, an incompetent bladder neck and fixed external sphincter tone.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 954.

Question #26 ANSWER=B

The delayed increase in serum creatinine is likely dueto reabsorption from an unrecognized ureteral leak/injury. During abdominal exploration it is frequently difficult to determine the viability of surrounding tissue, especially after a high velocity bullet wound. If one suspects a ureteral injury the best diagnostic test to confirm a delayed ureteral injury with extravasation is a retrograde pyelogram. CT gives excellent three dimensional assessment of other structures but may not identify and locate a ureteral injury without the use of I.V. contrast, which is contraindicated in this case. Ultrasound is operator dependent and is not the optimal test to identify a ureteral injury especially in the setting of an ileus and overlying bowel gas. Arteriography may be indicated if one suspects a renal hilar injury; in this situation it would not add additional information and the intravenous contrast load would be worrisome in the setting of an elevated serum creatinine. IVP is not indicated in this situation.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, pp 3707-3744.

Question #27 ANSWER=E

One of the most debilitating potential long-term complications of inguinal lymph node dissection is lower extremity edema. Edema is partially preventable by adherence to good operative technique. Preservation of the saphenous vein may not be a major influencing factor and ligation at the femoral triangle does not decrease edema. The operation can be performed without division of the inguinal ligament in most patients. Transposition of the sartorius muscle may help cover the bare surface of the femoral vessels but does not affect edema. The dissection should proceed inferior to Scarpa's fascia to decrease the incidence of flap necrosis. Dissection lateral and behind the femoral vessels should be avoided because of the presence of large lymphatic channels in this area.

Donat SM, Cozzi PJ, Herr HW: Surgery of penile and urethral carcinoma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 84, pp 2983-3000.

Question #28 ANSWER=E

The main determinants of compliance are the elastic and viscoelastic properties of the bladder. When these are destroyed as in fibrosis of the bladder, poor compliance results. Neurogenic influences may be operative in late stages of filling. Bladder smooth muscle maintains a steady level of contractility and tone that is dependent on activity in the autonomic nerves, circulating hormones, local metabolites, locally secreted agents such as nitric oxide, and temperature.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, p 889.

Question #29 ANSWER=B

Renal angiography clearly demonstrates that this mass is arising from the kidney and given the fat density within the lesion, the diagnosis is renal angiomyolipoma. The lesion is relatively large, > 4.0 cm, so observation is not an appealing option due to concern about hemorrhage, which would likely lead to loss of the kidney. A nephron-sparing approach should be considered, especially with the smaller right kidney. Given the size and location of the lesion, selective embolization would be the best option and partial nephrectomy is reserved for refractory cases.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, pp 2672-2731.

Question #30 ANSWER=D

If the physical findings and symptoms of patients with GU involvement secondary to either adenocarcinoma of the colon or diverticulitis are compared, they are nearly identical. The cystoscopic findings of bullous edema or fistula formation in the bladder are similar. Ureteral deviation or obstruction secondary to a mass in the left lower abdominal quadrant can be due to both disease processes. Sigmoidoscopy with biopsy is the best method to distinguish these diseases, however the correct diagnosis often cannot be made until pathological examination of the surgical specimen. Bladder biopsies are rarely positive.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #31 ANSWER=A

Intra-urethral prostaglandin administration is a reasonable alternative to intracavernosal injection therapy. Significant decrease in blood pressure occurs in approximately 2% of men. Penile pain is estimated to occur in 18-33% of men. Only 40% of men will consistently get a penetration rigidity erection with intraurethral alprostadil. Urethral bleeding is reported in about 5% of men and headache is rare.

Broderick GA, Lue TF: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 46, p 1655.

Question #32 ANSWER=C

Upper tract UTI's are common in patients with polycystic kidney disease, especially women. These can be divided into parenchymal and cyst infections. The parenchymal infections respond better than cyst infections to treatment. If the patient does not respond to an antibiotic or the urine culture is negative, one must consider that the infection may be present in a non-communicating cyst. A CT scan is the diagnostic procedure of choice for renal abscesses, particularly in difficult cases such as polycystic kidney disease, since it provides excellent delineation of the tissue. IVP, retrograde pyelography, and ultrasonography are not indicated in this situation. Radionuclide imaging with gallium and indium is sometimes useful in evaluating patients with renal abscesses. Percutaneous cyst aspiration is the treatment of choice, once the diagnosis is made.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 56, pp 1925-1994.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #33 ANSWER=E

There is no evidence that reflux is detrimental or progressive with short term follow-up. Unless this patient develops recurrent problems with infection or progressive renal deterioration, observation alone is appropriate.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3762-3763.

Question #34 ANSWER=B

The ideal candidate for alpha blockers should have symptoms that are sufficiently bothersome that the patient will commit to a lifetime of medical therapy. Although the severity of the AUA Symptom Score correlates well with bother there are patients with moderate scores who have severe bother and patients with severe symptoms who have less bother. Recurrent gross hematuria due to BPH is best treated with either 5-alpha-reductase inhibitor or surgical management. Prostate size does not correlate with symptom severity, degree of urodynamic obstruction or treatment outcomes and should not be considered in deciding whether active treatment is required.

Lepor H, Lowe FC: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 39, pp 1339-1359.

Question #35 ANSWER=A

The long arm of the Y chromosome harbors genes intrinsic to spermatogenesis, including the azoospermia factor (AZF). While males with AZFc deletions may or may not have sperm in the seminiferous epithelium, an AZFa and/or AZFb deletion in combination with an AZFc deletion uniformly results in a Sertoli cell only phenotype. Biopsy is unnecessary, and microsurgical testis sperm extraction will not yield sperm. Endocrine therapy with clomiphene citrate to stimulate Leydig cell production of testosterone, or with recombinant follicle stimulating hormone to stimulate Sertoli cell function, will not yield sperm as no germ cells are present.

Stouffs K, Lissens W, Tournaye H, Van Steirteghem A, Liebaers I: The choice and outcome of the fertility treatment of 38 couples in whom the male partner has a Yq microdeletion. HUM REPROD 2005;20:1887-1896.

Question #36 ANSWER=E

It was previously believed that scrotal surgery markedly increased the risk of local recurrence and inguinal node metastases. Further evidence now suggests that this risk has been overestimated and a formal hemiscrotectomy or prophylactic inguinal node dissection is rarely indicated. A meta-analysis of all evaluable reported series (1182 total cases, 206 with scrotal violation) found that the risk of local recurrence increased from 0.4% to 2.9% with scrotal violation, but there was no difference in the distant recurrence or survival rates. In clinical Stage I testis tumors, the previous scrotal scar should be widely excised along with any remaining spermatic cord. The inguinal nodes should be preserved.

Sheinfeld J, McKiernan J, Bosl GJ: Surgery of testicular tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 82, pp 2920-2944.

Question #37 ANSWER=E

Hyperacute rejection is an irreversible event mediated by preformed antibodies usually due to sensitization from prior renal transplantation, blood transfusion, or following pregnancy. It is extremely rare following a negative microlymphocytoxicity cross match and usually occurs immediately following revascularization of the allograft.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 10, pp 345-376.

Question #38 ANSWER=D

Because patients with spinal cord injury often have altered sensation, urinary tract symptomatology during infection is markedly different than those of sensate patients. Symptoms of urinary tract infection in spinal cord injured individuals may include leakage between catheterizations, flank, back or abdominal discomfort, increased spasticity, cloudy, malodorous urine, or lethargy. Urine culture should be obtained prior to antibiotic therapy, as diverse flora and antibiotic resistance is common in urinary infections in spinal cord injured patients. Reculture and adjustment of antibiotic therapy should be undertaken if clinical improvement does not occur within 24 to 48 hours, and a source of infection such as a stone, obstruction or abscess should be investigated with imaging studies.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #39 ANSWER=E

Before 1997, there were various definitions used in the determination of PSA failure following radiation therapy. To standardize reporting, ASTRO convened a panel to develop a standardized definition of PSA success or failure. The consensus statement on PSA after radiation therapy was published in 1997 and adopted within the radiation oncology community to allow uniform reporting of PSA recurrence. The definition defined the point of PSA failure as the time midway between the post-treatment PSA nadir and the first of the three consecutive rises in PSA. This definition is now an accepted standard in both radiation oncology and urology clinical practice.

D'Amico AV, Crook J, Beard CJ, DeWeese TL, Hurwitz M, Kaplan I: Radiation therapy for prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 92, pp 3147-3170.

Question #40 ANSWER=A

A residual mass after appropriate chemotherapy for pure seminoma most often represents resolving necrotic tissue or scar rather than residual malignant elements. If the original mass has shrunk by at least 90% and/or the residual mass is less than 3 cm, initial observation is the best management. In this patient, the mass has shrunk significantly, and repeat imaging is warranted to determine if continued involution occurs.

Horwich A, Paluchowska B, Norman A, et al: Residual mass following chemotherapy of seminoma. ANN ONCOL 1997;8:37-40.

Sheinfeld J, McKiernan J, Bosl GJ: Surgery of testicular tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 82, pp 2920-2922.

Question #41 ANSWER=B

Because of the strong association between Proteus mirabilis and struvite stone formation, the finding of this organism on urine culture should prompt a search for causative or associated urinary tract stones, particularly in highly susceptible individuals such as patients with spinal cord injury, neurogenic bladder or chronic indwelling catheter. Although most low-risk patients diagnosed with Proteus mirabilis cystitis do not have associated struvite stones, the potential morbidity from a missed stone is substantial and warrants radiographic imaging. Non-contrast CT scan is the most sensitive test for detecting urinary calculi.

Schaeffer AJ: Infections of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #42 ANSWER=D

Each round ligament arises from the top of the side of the uterus and passes anteriorly and laterally towards the deep inguinal ring. The round ligaments run in the upper part of the broad ligament to the uterus while all other ligaments run to the base of the uterus and cervix. The round ligament is encountered during radical cystectomy in the female.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 2, p 67.

Question #43 ANSWER=D

Malignant infiltration of the corpora occurs when erectile tissue is replaced by metastatic cancers most commonly prostate or bladder. It is often painless, but may present with penile pain. It is not a true priapism so blood gas analysis will be normal and the patient does not a have a formal erection. This man's cavernosal blood gas analysis is normal for the flaccid penis and does not support either ischemic or arterial priapism. His metastatic TCC of the bladder makes him at risk for malignant infiltration of the corpora. Men with penile fracture present with a history of instantaneous penile detumescence and massive bruising/hematoma formation on the penis. This blood collection is generally confined to the penis underneath Buck's fascia unless there is also a urethral rupture in which case blood may track outside of the penis. Peyronie's disease is characterized by a tunical scar that does not replace the erectile tissue although it may locally invade cavernosal smooth muscle.

Trivez Boned MA, Aranda Lassa JM, Lozano Enguita J, et al: Transitional carcinoma and malignant priapism. ACTAS UROL ESP 2004;28:694-697.

Inamoto T, Azuma H, Iwamoto Y, et al: A rare case of penile metastasis of testicular cancer presented with priapism. HINYOKIKA KIYO 2005;51:639-642.

Question #44 ANSWER=D

Obstructive pyelonephritis mandates urgent decompression of the collecting system to prevent life-threatening sepsis. Although low grade fever in association with an obstructing stone is not uncommon, high grade fever and/or significant leukocytosis suggests infection and should be treated promptly. The optimal drainage modality for an obstructed, infected collecting system has not been firmly established. However a randomized trial compared percutaneous nephrostomy verus ureteral stent for drainage of an obstructed kidney associated with clinical signs of infection and showed no clinical advantage to one modality over the other with regard to time to normalization of temperature or white blood count or hospital length of stay. However, given the large proximal ureteral stone and high grade obstruction, retrograde stent placement may prove difficult, and in this case placement of a percutaneous nephrostomy tube would likely be the most expedient form of treatment. In addition, the percutaneous access used for drainage could be used for future PCNL. Definitive management of the stone is delayed until the infection is adequately treated with a full course of antimicrobial therapy and a follow-up urine culture is negative.

Pearle MS, Pierce HL, Miller GL, et al: Optimal method for urgent decompression of the collecting system for obstruction and infection due to ureteral calculi. J UROL 1998;160:1260-1264.

Question #45 ANSWER=B

A diamond shaped flap of penile skin mobilized on a pedicle through the scrotum as an onlay flap to repair the ventral urethral defect is the preferred treatment of this long bulbar stricture. The flap provides its own blood supply and avoids some of the long-term problems of grafts. In a child of this age a 2 cm gap is too long for an end to end urethroplasty. Repeat internal urethrotomy and urethral dilation will result in stricture recurrence and is not a long-term cure. A vascularized patch flap should have > 90% success in one operation and is preferred over a staged procedure.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, p 3707.

Question #46 ANSWER=A

Primary hyperaldosteronism (Conn's Syndrome) due to adrenal hypersecretion of aldosterone causes hypertension and hypokalemia in non-edematous patients. Conn's syndrome accounts for about 1% of hypertensive patients, usually women between the ages of 30-50 years. Patients typically have hypertension, muscle weakness, polyuria, hypokalemia, and mild metabolic acidosis. However, essential hypertension treated with diuretics is the most common cause of hypokalemia in patients with hypertension. Secondary hyperaldosteronism can be due to renal artery stenosis, cardiac failure, hepatic cirrhosis, pregnancy and Bartter's Syndrome (due to juxtaglomerular cell hyperplasia)

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, pp 3535-3536.

Ganguly A: Primary aldosteronism. NEJM 1998;339:1828-1834.

Question #47 ANSWER=E

If a patient appearing to have uncomplicated acute pyelonephritis is not so ill that hospitalization is required (most commonly determined by ability to maintain oral hydration), then outpatient therapy with empirical antibiotics is indicated. Although urine culture and sensitivity panel are appropriate to determine the nature of the infection, empirical antimicrobial therapy should be initiated immediately. Fluoroquinolones and TMP-SMX are excellent choices. Nitrofurantoin is effective in urine, but does not obtain therapeutic levels in most body tissues and is not useful for upper tract infections. Upper tract imaging is not required when uncomplicated pyelonephritis is suspected. However, imaging should be considered if the patient does not respond to antibiotic therapy within 48-72 hours, or in the presence of specific indications such as diabetes mellitus, and history of nephrolithiasis or other forms of obstruction.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 543-544.

Question #48 ANSWER=C

Although suggestive of the absence of the testis, the finding of a blind-ending vas deferens is not definitive. Proof comes with exploration for spermatic vessels that is best done with an intraabdominal exploration. Transumbilical laparoscopy would not be practical in this patient since the groin is already open. Laparoscopy using the inguinal incision is possible but not offered here. In this clinical setting, the incision could be extended superiorly and the peritoneal cavity entered at the level of the internal ring. If the testis is absent, the vessels can often be traced to the point of the blind-ending vas. If the testis is present, it will be found higher in the abdominal cavity even though it is truly a retroperitoneal structure.

Schneck FX Bellinger MF: Abnormalities of the testes scrotum and their surgical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 67, p 2357.

Question #49 ANSWER=E

A number of molecular pathways have been identified for communication of signals from the cell surface to the nucleus. Tyrosine kinases transfer energy within the cell by phosphorylation of proteins. These intracellular signaling pathways are critical for the regulation of the transcription of nuclear DNA.

Flechner SM, Finke JH, Fairchild RL: Basic principles of immunology and urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 9, pp 318-323.

Question #50 ANSWER=B

This patient has eosinophilic granulomatous cystitis. It usually presents as a mass-like lesion with irritative symptoms and hematuria. It may be mistaken for a neoplastic process, but is benign and self-limited. If the lesion is focal with minimal symptomatology, observation is appropriate. Patients with focal lesions may also be managed with laser fulguration or TUR. In diffuse lesions, resection is not indicated. Both antihistamines and steroids may aid in relieving symptomatology, steroids have been reported to relieve symptoms faster although direct statistical comparisons are not available. Unless infection is also present, there is no need to treat with antibiotics. The process is non-specific and consideration for a causative condition is necessary; e.g. schistosomiasis in a patient at risk.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #51 ANSWER=C

The patient has a complete duplication with the upper pole of the right kidney obstructed by a ureterocele. Given the young age of the child and the pyelonephritis, endoscopic incision would provide rapid decompression of the kidneys with little morbidity. There is a potential for reflux into the upper pole segment, but this can be managed electively when the patient is older. Upper pole nephrectomy is a consideration, but the function of the upper segment has not been evaluated. Ureteral reimplantation is not advisable due to the dilated ureters and small size of the child. Vesicostomy would not improve drainage of the obstructed upper pole moiety. With upper pole hydronephrosis and a classic filling defect consistent with a ureterocele a bladder tumor is unlikely and therefore a bladder biopsy is not indicated.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 58, pp 2007-2052.

Question #52 ANSWER=B

Doxazosin monotherapy was associated with a higher risk of congestive heart failure in this population. Based upon these findings, use of an alpha-blocker to treat LUTS should not be assumed to constitute optimal management of concomitant hypertension. In these cases patients may require additional medication to optimally treat the hypertension and minimize the risk of cardiac disease. Interestingly, erectile and ejaculatory dysfunction was not higher in the doxazosin group.

Major cardiovascular events in hypertensive patients randomized to doxazosin vs. chlorthalidone: The antihypertensive and lipid-lowering treatment to prevent heart attack trial (ALLHAT) Collaborative Research Group. JAMA 2000;283:1967-1975.

AUA Guidelines on the management of BPH (2003): Diagnosis and treatment recommendations. Available at www.auanet.org/guidelines/.

Question #53 ANSWER=B

Fibroepithelial polyps are benign. The usual presentation is hematuria and ureteral obstruction. Endoscopic resection must be complete to prevent recurrence. Followup radiographic imaging should be undertaken to assure complete resection and absence of stricture.

Kiel H, Ullrich T, Roessler W, et al: Benign ureteral tumors: Four case reports & review of the literature. UROL INT 2000;63:201-205.

Question #54 ANSWER=D

Most renal cystic conditions, whether congenital, acquired or sporadic arise from the nephrons and collecting ducts after they have formed. Multicystic dysplasia is an exception in that it arises prior to formation of the nephron. Autosomal polycystic kidney disease occurs during the formation of the nephron.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 56, pp 1925-1994.

Question #55 ANSWER=E

Inadvertent cystotomy from a trocar during mid-urethral polypropylene sling surgery is not uncommon. These puncture holes are quite small and generally heal without complication if the bladder is adequately drained postoperatively for several days. Open surgical repair in the acute setting is not necessary and the location of these injuries makes it a technically demanding undertaking from either a transabdominal or transvaginal approach. In general, reinsertion of the trocar and placement of the mid-urethral sling material is safe even in the setting of a concomitant trocar injury. A Burch colosuspension would require a second incision (abdominal) and result in a greater risk for voiding dysfunction than the mid-urethral sling.

Lebret T, Lugagne PM, Herve JM, et al: Evaluation of tension-free vaginal tape procedure: Its safety and efficacy in the treatment of female stress urinary incontinence during the learning phase. EUR UROL 2001;40:543-547.

McLennan MT, Melick CF: Bladder perforation during tension-free vaginal tape procedures: Analysis of learning curve and risk factors. OBSTET & GYNEC 2005;106:1000-1004.

Question #56 ANSWER=C

Observation is unacceptable in this symptomatic patient. Although SWL may be used successfully to treat a subset of patients with stones in calyceal diverticula that have a broad infundibular neck, the overall stone free rates with SWL are unacceptably low. Percutaneous nephrostolithotomy is not only associated with the highest stone-free rate, but also the procedure results in resolution of the diverticulum. However, anteriorly-located diverticula necessitate percutaneous access through the renal parenchyma with a high risk of bleeding complications. The ureteroscopic approach is ideal for upper pole calyceal diverticula with < 2 cm stones.

Batter SJ, Dretler SP: Ureterorenoscopic approach to the symptomatic caliceal diverticulum. J UROL 1997;158:709-713.

Chong TW, Bui MHT, Fuchs GJ: Calyceal diverticula. Ureteroscopic management. UROL CLIN N AM 2000;27:647-653.

Question #57 ANSWER=E

The figure 1:100,000 means 1 gram per 100,000 ml. One gram equals 1000 milligrams or 1,000,000 micrograms. Therefore, this solution consists of 1 million micrograms per 100,000 ml which is 10 micrograms per ml. The answer can be found quickly by dividing 1 million by the solution strength (100,000) to get the number of micrograms per ml.

Bourne HR, von Zastrow M: Drug receptors and pharmacodynamics, in Katzung H (ed): BASIC AND CLINICAL PHARMACOLOGY, ed 9. New York, McGraw Hill, 2002, chap 2, pp 16-33.

Question #58 ANSWER=E

An integral part of the immune response involves the activation of T cells by dendritic or antigen presenting cells. This interaction occurs via the T cell receptor in the context of MHC (major histocompatibility complex). B cells, unlike T cells, can be directly stimulated by antigen, which then allows B cell differentiation into antibody producing plasma cells. TNF (tumor necrosis factor) and other cytokines are produced by activated T cells and augment the cellular and humoral immune response. Dendritic cell therapies are being evaluated in the treatment of a number of urologic malignancies.

Dahm P, Vieweg J: Evolving immunotherapeutic strategies for the treatment of prostate and renal carcinomas. AUA UPDATE SERIES 2004, vol 23, lesson 4.

Flechner SM, Finke JH, Fairchild RL: Basic principles of immunology and urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 9, pp 321-323.

Question #59 ANSWER=D

Although it was initially thought that SWL was more successful after manipulation of ureteral stones into the kidney or placement of a stent alongside the stone to produce an "expansion chamber" that facilitates SWL fragmentation, subsequent studies showed no difference in stone free rates in patients treated with or without stone or stent manipulation. Indeed, the AUA Nephrolithiasis Ureteral Stones Clinical Guidelines Panel concluded that there is no advantage to placement of a ureteral stent for proximal ureteral stones with regard to stone free rates.

Segura JW, Preminger GM, Assimos DG, et al: Ureteral Stones Clinical Guidelines Panel summary report on the management of ureteral calculi. AUA. J UROL 1997;158:1915-1921.

Question #60 ANSWER=B

A history of trauma is common in a patient with an acute scrotum. Although a testicular rupture is possible, a more likely possibility in a prepubertal boy is torsion of a testicular appendage with a blue-dot sign. Because the examination is difficult, an ultrasound is most appropriate. Scrotal nuclear scan does not provide enough anatomic detail. The hydrocele makes adequate physical exam and potential detorsion impossible. The threat of torsion or testicular rupture makes observation inappropriate.

McAninch JW, Santucci RA: Genitourinary trauma, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 105, pp 3707-3744.

Question #61 ANSWER=B

Normal daily creatinine excretion should be 18-20 mg/kg lean body weight in women, and 20-22 mg/kg lean body weight in men. If the urine creatinine content is considerably lower than the calculated amount, an incomplete collection is likely. This same index can be used to determine over-collection.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, pp 167-227.

Question #62 ANSWER=C

The Centers for Disease Control and Prevention and the Public Health Service recommend follow-up HIV-testing for six months after occupational exposure, regardless of whether the exposed individual received postexposure prophylaxis or not. Most infected individuals seroconvert within 6-12 weeks of exposure. HIV-antibody testing is recommended at 6 weeks, 12 weeks and 6 months using the enzyme immuno assay (EIA) test rather than the HIV p24 antigen EIA or HIV RNA assays. HIV testing should be performed on any healthcare worker who presents with an illness compatible with an acute retroviral syndrome, regardless of the time interval since exposure.

Centers for Disease Control and Prevention. Public Health Service guidelines for the management of health care workers exposure to HIV and recommendations for postexposure prophylaxis. MORB MORTAL WEEKLY REP1998;(RR-7):47:1-33.

Cardo DM: The most commonly asked Questions about postexposure prophylaxis after occupational exposures to the human immunodeficiency virus. INF DIS CLIN PRACTICE 2000;9(4):159-163.

Question #63 ANSWER=E

Hematuria after prolonged strenuous exercise, is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. Hypercalciuria is not related to exercise, and therefore the urinary calcium/creatinine ratio will be normal. The urinalysis in this benign condition is generally normal 48-72 hours after the exercise. Myoglobinuria is characteristically brown without RBCs.

Polito C, Andreoli S: Sport hematuria in boys: A provocative test. PED NEPHR 2005;20:1171-1173.

Holmes FC, Hunt JJ, Sevier TL: Renal injury in sport. CURR SPORTS MED REP 2003;2:103-109.

Question #64 ANSWER=D

The symptom complex described above describes the multiple system atrophy (Shy-Drager syndrome). This degenerative disorder results in atrophy of areas in the cerebellum, brain stem, peripheral autonomic ganglia, and thoracolumbar preganglionic sympathetic neurons. Patients with multiple system atrophy usually have Parkinsonian symptoms coupled with orthostatic hypotension and anhidrosis. Because of disruption of the sympathetic innervation to the lower urinary tract, the bladder neck is open at rest. None of the other answers fit with the symptom complex described.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, pp 931-1026.

Question #65 ANSWER=E

Ureteral injury occurs in 0.5-1.5% of patients undergoing abdominal hysterectomy and up to 2.2% undergoing radical hysterectomy. Other causes of iatrogenic ureteral injury include penetrating trauma, laparoscopic gynecologic procedures, colorectal surgery (especially abdomino-perineal resection), vascular surgery, and urologic procedures. Keys to management are early recognition, adequate debridement, tension-free spatulated anastomosis and omental wrapping. Short, distal ureteral defects (< 5 cm) can be managed by ureteroneocystostomy, larger defects (6-8 cm) by psoas hitch reimplantation and very large defects (12-15 cm) by use of a Boari flap. Transureteroureterostomy is contraindicated in patients with nephrolithiasis. If a Boari flap is not technically possible, an ileal interposition or autotransplantation are considerations.

Selzman AA, Spirnak JP: Iatrogenic ureteral injuries: A 20-year experience in treating 165 injuries. J UROL 1996;155:878-881.

Question #66 ANSWER=E

Blood supply to the rectum arises proximally from the superior rectal (hemorrhoidal) artery, inferior mesenteric artery, and distally from the middle (hemorrhoidal) and inferior rectal arteries. When the inferior mesenteric artery is ligated, blood supply to the rectum is maintained by the middle hemorrhoidal artery which is a branch of the posterior division of the hypogastric artery and the inferior rectal artery which is a branch of the internal pudendal artery.

Sheinfeld J, McKiernan J, Bosl GJ: Surgery of testicular tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 82, pp 2920-2944.

Question #67 ANSWER=C

In patients with bilateral renal artery disease, hypertension is largely volume dependent. This serves to protect renal function. When diuretics cause volume depletion, renal function becomes angiotensin dependent and with exposure to converting enzyme inhibitors results in renal insufficiency. This scheme has been suggested as a provocative test to identify patients with ischemic nephropathy. Angiography is appropriate in these patients. Captopril renography is less accurate in renal insufficiency. Renin based testing is mainly utilized for evaluation of renovascular hypertension and not ischemic nephropathy. The clinical scenario, as described, is tantamount to a provocative test. No further functional testing is required, only anatomical assessment of the renal artery is needed.

Van De Veer PJG, Beutler JJ, Kaatee R, et al: Angiotensin converting enzyme inhibitor-induced renal dysfunction in atherosclerotic renovascular disease. KID INT 1998;53:986-993.

Question #68 ANSWER=C

In order to decrease the likelihood of cardiac arrhythmias, the shock wave is triggered by the "R" deflection of the QRS complex. Nonsynchronized SWL treatment may induce arrhythmias, most likely premature ventricular contractions, in 18%-20% of patients. No relationship between the induction of arrhythmias and gender, age, presence of heart disease, stone size, or stone location has been noted. Non-gated SWL requires less time and analgesia. For the patient who develops a cardiac arrhythmia during ungated SWL, conversion to gated SWL is recommended.

Ganem JP, Carson CC: Cardiac arrhythmias with external fixed-rate signal generators in shock wave lithotripsy with the Medstone lithotripter. UROL 1998;51:548-552.

Question #69 ANSWER=C

The most likely cause of this man's polyuria is psychogenic polydipsia because the plasma osmolality is less than normal and the urinary osmolality is appropriately low for this condition. Patients with neurogenic diabetes insipidus usually have plasma osmolality in the high normal range. Nephrogenic diabetes insipidus is also associated with plasma osmolalities in the high/normal range. Lithium is used to treat bi-polar (manic depressive) disorders and can induce nephrogenic diabetes insipidus. Patients with diabetes mellitus have an osmotic diuresis and the urine osmolality is generally hypertonic.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology and urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 12, pp 455-456.

Question #70 ANSWER=D

Acute ureteral obstruction results in decreased renal blood flow due to preglomerular vasoconstriction with a resulting decreased filtered solute load, increased proximal tubular sodium absorption, and decreased sodium delivery to the distal tubule and macula densa. This results in increased renin release from the juxtaglomerular apparatus and may cause renin-mediated hypertension. Decreased sodium absorption does not occur and volume expansion would only be a problem in the setting of bilateral obstruction or obstruction of a solitary kidney. Nephron loss would only occur with more prolonged obstruction. Sodium retention and/or volume expansion may cause hypertension with chronic bilateral obstruction.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology and urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 12, pp 411-462.

Question #71 ANSWER=A

Between 60% and 80% of women with ureteral colic will spontaneously pass their calculi with hydration and analgesic therapy. If the calculus fails to pass with conservative therapy, a ureteral stent should be placed cystoscopically with sonography or minimal radiographic imaging, as the first trimester presents the period of greatest risk of teratogenicity and spontaneous abortion. Fluoroscopy should be avoided. Pregnancy is an absolute contraindication for the use of SWL.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, pp 3229-3305.

Question #72 ANSWER=A

The diagnostic findings on ultrasound and renal scan are sufficient to confirm multicystic dysplastic kidney. The absolute indications for removal are few, including hypertension, solid mass, or significant respiratory or gastrointestinal compromise. Aspiration is an option in a premature neonate or a toxic child, but at six weeks of age, nephrectomy is preferred. The lack of renal function eliminates a salvageable UPJ obstruction. Therefore cystoscopy and retrograde pyelogram is unnecessary, and pyeloplasty is not an option.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 56, p 1925.

Question #73 ANSWER=A

Following spinal cord injury patients develop spinal shock that lasts approximately four weeks. During spinal shock, the detrusor is hypocontractile. In patients with complete high spinal cord injury the long term urodynamic manifestation is most commonly neurogenic detrusor overactivity with detrusor–sphincter dyssynergia. Stress incontinence would not be demonstrable during urodynamics since the patient would be unable to increase her abdominal pressure.

Chancellor MB, Yoshimura N: Voiding function and dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 23, pp 831-886.

Question #74 ANSWER=E

Symptomatic lower calyceal stones clear poorly after fragmentation with SWL, especially in horseshoe kidneys. Ureteroscopic fragmentation and stone extraction in these malrotated kidneys can be difficult. Residual stone fragments are unlikely to pass spontaneously and the likelihood of rendering the patient stone free is limited. Percutaneous renal access can be performed safely through a superior and posterior calyceal puncture. The entry site of the puncture needle is more medial, just lateral to the paraspinous musculature, in comparison to inferior pole punctures in normally positioned kidneys. An inferior calyceal puncture in a horseshoe kidney could be dangerous due to its medial, more anterior and inferior location. Even in thin patients one may need to utilize longer instruments including flexible cystoscopes, flexible or rigid ureteroscopes, or extra-long nephroscopes. Percutaneous renal access through a superior pole puncture can be performed in a safe fashion and is the most optimal route to render the patient stone free.

Baskin LS, Floth A, Stoller ML: The horseshoe kidney: Therapeutic considerations with urolithiasis. J ENDOUROL 1989;3:51-58.

Al-Otaibi K, Hosking SH: Percutaneous stone removal in horseshoe kidneys. J UROL 1999;162:674-677.

Question #75 ANSWER=C

Thiazide diuretics are able to diminish blood volume acutely by inhibiting sodium and chloride reabsorption at the distal convoluted tubule and thus diminish both renal blood flow and glomerular filtration rate. Thiazide diuretics are indicated in patients with calcium nephrolithiasis because they decrease urinary calcium by promoting calcium reabsorption in the distal tubule. In nephrogenic and partial pituitary diabetes insipidus, thiazides produce an antidiuresis due to the sodium-depleting effects, causing a contraction of the extracellular fluid volume with less delivery of filtrate to the distal nephron. Furosemide, not thiazides, is useful in treating hypercalcemia.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, pp 3229-3305.

Question #76 ANSWER=C

Approximately one-third of patients with multiple sclerosis who are in retention go on to develop neurogenic detrusor overactivity and require anticholinergic agents. Urinary symptoms and urodynamic findings often change as the disease progresses and, for this reason, these patients must be carefully followed with the knowledge that therapy may need to be altered. According to the International Continence Society, detrusor overactivity is now classified as neurogenic or idiopathic, replacing the old terms of detrusor hyperreflexia and instability.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its treatment, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, pp 931-1026.

Question #77 ANSWER=C

This patient is at high risk for subsequent development of renal cell carcinoma in the contralateral kidney and thus renal-preserving management is desirable. Partial nephrectomy and thrombectomy has been demonstrated to be effective in such a patient and can be done safely and successfully using an in situ approach. While infarction will occasionally lead to regression of the thrombus, the extent of this thrombus is manageable without infarction and avoidance of possible complications of infarction is desirable.

Angermermeier KW, Novick AC, Streem SB, Montie JE: Nephron-sparing surgery for renal cell carcinoma with venous involvement. J UROL 1990;144:1352-1355.

Marshall F: Editorial comment. J UROL 1990;144:1355.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, pp 2672-2731.

Question #78 ANSWER=E

The best treatment for a patient with low bladder compliance, small capacity, and sphincteric incontinence is the combined use of bladder augmentation and increased bladder outlet resistance. When an artificial urinary sphincter is used in conjunction with augmentation of the bladder, the timing of the two procedures does not appear to affect the outcome. More important factors are good bowel preparation, intravenous antibiotics, sterility of the urine, and meticulous surgical technique to avoid entering the previously augmented bladder during sphincter implantation which may predispose to infection and sphincter erosion. Patients who have undergone prior incontinence procedures are also at increased risk for sphincter erosion.

Smith JJ III, Barrett DM: Implantation of the artificial genitourinary sphincter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 34, pp 1187-1194.

Question #79 ANSWER=C

Tissue atrophy is the leading cause of recurrence in this scenario. However, urodynamic evaluation may reveal involuntary detrusor contractions or decreased bladder compliance. Deactivation will not permit improved sphincter function. Surgical exploration is not indicated if the cause of the incontinence is unrelated to the device (detrusor overactivity or impaired compliance). Alpha-blockers would not be expected to have any effect on urinary incontinence in this case regardless of the underlying cause. Anticholinergics would not treat causes of incontinence related to device malfunction.

Smith JJ III, Barrett DM: Implantation of the artificial genitourinary sphincter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 34, pp 1192-1194.

Nitti VW: Postprostatectomy incontinence, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 28, p 1061.

Question #80 ANSWER=D

Human papillomavirus (HPV) is associated with both benign and malignant lesions of the penis. More than 65 types of HPV have been identified. The HPV's that infect the anogenital area can be separated into two distinct groups on the basis of their association with recognized clinical entities. In an examination of 30 specimens of penile cancer from 23 patients by PCR and ISH assays, the HPV-16 genome was found in 65%, HPV-30 in 13%, and HPV-6 or HPV-11 in 9%. Another study by Sarkar and associates detected HPV-16 in 9/11 invasive squamous cell carcinomas and all seven of the Bowenoid forms of carcinoma in situ. Recently, a vaccine to HPV-16 has been approved for women between the ages of 12 and 16 to prevent cervical cancer caused by this virus.

Lynch DF Jr, Pettaway CA: Tumors of the penis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 83, pp 2945-2982.

Question #81 ANSWER=D

The adrenal gland is in the normal anatomic position, no matter whether the kidney is absent or ectopic. The embryologic development of each of these structures is distinct.

Bauer SB: Anomalies of the upper urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 55, pp 1885-1924.

Question #82 ANSWER=B

Medial fibroplasia of the renal artery rarely progresses to complete occlusion and it is unusual for patients to experience progressive loss of renal function. All of the other listed forms of renal artery disease carry a significant risk of progression to complete occlusion with loss of renal function. Medial fibroplasia resulting in renovascular hypertension may be successfully treated with endovascular techniques.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 7, pp 229-271.

Question #83 ANSWER=B

An occasional patient cannot tolerate BCG due to significant local symptoms. While BCG in Phase III randomized trials appears to be the best agent for CIS, responses are seen with other agents (such as mitomycin C) that may have less toxicity. In a randomized clinical trial, mitomycin C was shown to be more effective than doxorubicin in the treatment of CIS. Reducing the dose of BCG does not seem to reduce toxicity and cystoprostatectomy should be reserved for the patient who has undergone at least one intravesical treatment cycle of chemotherapy.

Malkowicz SB: Management of superficial bladder cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 77, pp 2785-2802.

Question #84 ANSWER=E

This is a common scenario in pediatric urology. Work-up of this problem should be minimal. Spontaneous improvement is likely. Renal bladder sonogram is non-invasive but not yet indicated. If the symptoms persist for more than four weeks, a renal/bladder ultrasound should be performed. VCUG is reserved for patients with UTI or clinical evidence of bladder outlet obstruction. CMG is not indicated without other clinical findings such as signs and symptoms of a neurogenic bladder. CBC and eosinophil count is useful in the work-up of parasites but not in this condition.

Canning DA: Evaluation of the pediatric urologic patient, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 52, pp 1812-1832

Question #85 ANSWER=D

The defective conversion of testosterone to dihydrotestosterone produces a unique form of male pseudohermaphroditism. At birth, the Mullerian structures are absent and testosterone-dependent Wolffian structures are well differentiated. The 5-alpha-reductase enzyme defect is generally incomplete, and at puberty the plasma concentration of dihydrotestosterone, while low, is detectable. Plasma testosterone and LH are elevated while the dihydrotestosterone/testosterone ratio is abnormally low. 5-alpha-reductase deficiency is inherited as an autosomal recessive trait, and the enzymatic defect exhibits genetic heterogeneity.

Elder JS: Abnormalities of the genitalia in boys and their surgical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 66, pp 2334-2352.

Question #86 ANSWER=B

Because of extensive damage to the tissues of the left side of the pelvis from the recent and prior disease processes, a ureteroureterostomy or interposition of an ileal segment would be very difficult and apt to fail. Because the left kidney functions well and the patient is only 40 years old, nephrectomy is inappropriate. Autotransplantation to the right side of the pelvis is a possibility but is a formidable procedure and should be reserved for situations where there are no other reasonable options. The remaining left ureter has sufficient length and is far enough removed from the damaged tissues to permit a satisfactory transureteroureterostomy.

Rodriguez L, Payne CK: Management of urinary fistulas, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY, ed 3. Philadelphia, WB Saunders Co, 2001, chap 17, pp 186-203.

Question #87 ANSWER=D

Alpha-fetoprotein (AFP) is a single chain glycoprotein produced by the fetal yolk sac, liver and gastrointestinal tract. Various benign and malignant conditions can produce elevations of AFP, including yolk sac tumors of the testis. AFP has a half-life of five days and degradation curves can be followed after orchiectomy to assess for residual disease. The age of the child must be considered when monitoring serum levels of AFP. Reference normal values for infants have now been established. Normal adult levels (< 10 ng/ml) are not reached until eight months of age. The mild elevation of the serum AFP in this young infant should be followed by serial levels.

Ritchey M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 70, p 2497.

Question #88 ANSWER=C

Spermatozoa must undergo some physiologic changes in the female genital tract before they gain the ability to fertilize ova. Although poorly characterized, this process, termed capacitation, is thought to be related to changes in the sperm plasma membrane. Capacitation precedes the acrosome reaction and the release of acrosin. It can be induced in vitro by removal of the sperm from the seminal plasma, which inhibits capacitation, and by incubating the sperm with follicular fluid. Epididymal enzymes are not thought to play a role.

Schlegel PN, Hardy M: Reproductive function and dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 42, pp 1437-1474.

Question #89 ANSWER=C

Urine leak following partial nephrectomy occurs in up to 15% of cases with collecting system injury. In most cases, spontaneous closure of the leak occurs within two to four weeks postoperatively provided it is well-drained. As the fistula tract matures around the drain, it is slowly advanced out allowing the tract to collapse. In the case of an unrecognized leak, the presence of an adjacent urinoma will prevent fistula closure and likely predispose the patient to ultimate infection/abscess formation. Percutaneous drainage of an uncomplicated urinoma will likely create a controlled pyelocutaneous fistula, thereby allowing spontaneous closure. If the leak does not heal with drainage of the perinephric space, consideration should be given to the possibility of ureteral obstruction due to blood clot or ureteral stricture. Even if such factors are not identified, renal drainage through retrograde stent placement or percutaneous renal access will likely aid in closure of the leak. If a stent is placed, a concomitant urethral catheter will prevent reflux into the kidney.

Novick AC: Surgery of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 102, p 3612.

Question #90 ANSWER=B

Maintenance fluids are based on body weight. One formula is: 100 ml/kg for the first 10 kg and 50 ml/kg for the second 10 kg, then 20 ml/kg for the remainder. Hence, for a 14 kg child, 1200 ml/day is appropriate (or 50 ml/hr). The normal kidney can reabsorb sodium well, so 1/4 NS is sufficient.

McDougal WS: Perioperative care, in Gillenwater J, Grayhack J, Howard S, Duckett J (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. Philadelphia, Lippincott Williams & Wilkins, 2001, vol 1, chap 10, pp 449-478.

Question #91 ANSWER=C

The HLA antigens of one chromosome are termed a haplotype. Each person has two haplotypes, one haplotype inherited from each parent. Therefore, there is a 25% chance of each sibling inheriting the exact same haplotypes (HLA- identical), a 50% chance of inheriting at least one common haplotype (haploidentical), and a 25% chance of a complete HLA mismatch.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 10, pp 345-376.

Question #92 ANSWER=B

Regional ileitis is an absolute contraindication to the use of ileum for creation of an ileal orthotopic neobladder. This form of diversion may be used in the other situations listed, assuming that renal function is sufficient to prevent the development of acidosis and that no radiation damage is apparent in the segment of bowel used to construct the urinary diversion. In patients with a solitary kidney and/or hydronephrosis with normal renal function can undergo an ileal orthotopic neobladder.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3745-3788.

Question #93 ANSWER=C

The blood supply of the omentum arises from the gastroepiploic arteries. The right gastroepiploic is best chosen for development of the wrap as the left is relatively small and more variable in its anatomy.

Turnage RH, Li BD, McDonald, JC: Abdominal wall, umbilicus, peritoneum, mesentery, omentum, and retroperitoneum, in Townsend C, Beauchamp RD, Evers BM, Mattox KL (eds): SABISTON'S TEXTBOOK OF SURGERY, ed 17. Philadelphia, Elsevier-Saunders Publishing, 2004, chap 41, p 1187.

Question #94 ANSWER=E

Hyperkalemia is a common electrolyte disturbance observed in acute renal failure. Parenteral insulin/glucose and bicarbonate will shift potassium into cells and temporarily correct hyperkalemia but does not decrease total body potassium. Calcium ameliorates the effect of hyperkalemia on the cardiac electrical potential. Sodium polystyrene sulfonate (Kayexalate) is a potassium binding resin that removes potassium from the body. It can be given orally or as an enema but may take several hours to work. It should not be administered to patients with an ileus due to a risk of bowel ischemia and perforation.

Goldfarb DA, Nally JV Jr, Schreiber MJ Jr: Etiology, pathogenesis, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 8, pp 272-306.

Question #95 ANSWER=D

This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy. The urodynamic test showing a high pressure void of 45 cm H_2O coupled with increased PVR is most consistent with bladder outlet obstruction. A common cause of bladder outlet obstruction in females is prior anti-stress incontinence surgery such as a sling. Another cause of bladder outlet obstruction is an increased tone of the striated muscle pelvic floor (including external urethral sphincter). Given that this patient has not had previous anti-incontinence surgery and that the external sphincter is silent and the bladder neck minimally opens during voiding, the level of obstruction is at the bladder neck. Anticholinergic therapy is contraindicated in patients with increased PVR. Biofeedback is useful in patients with pelvic floor spasticity, which this patient does not have. Urethral dilation has no effect on the bladder neck. A trial of medical therapy with an alpha-blocker is indicated. If not successful in relieving symptoms and/or decreasing PVR, incision of bladder neck is indicated.

Kumar A, Mandhani A, Gogoi S, Srivastava A: Management of functional bladder neck obstruction in women: Use of alpha-blockers and pediatric resectoscope for bladder neck incision. J UROL 1999;162:2061-2065.

Question #96 ANSWER=D

Diurnal enuresis occurs in 5% of seven-year-old children. In most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature. Urethral dilation is not indicated for the treatment of enuresis. Some authors have suggested that an occult tethered cord is responsible for persistent diurnal enuresis. However, imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, pp 2231-2283.

Question #97 ANSWER=A

The most common location for urethral laceration during implantation of a penile prosthesis is in the distal urethra, usually at the meatus. It is generally not possible to repair these injuries, and the procedure should be aborted allowing the laceration to heal over a urethral catheter for three to five days. Suprapubic diversion is unnecessary, and re-operation can be performed in four to six weeks.

Lewis RW, Jordan GH: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 47, pp 1673-1733.

Question #98 ANSWER=B

Mitotane is used as an adrenolytic for the management of patients with advanced adrenocortical carcinoma. It is 70% successful at palliating endocrinologic manifestation of the malignancy. Objective response rates (reduction of tumor size), however, are only 20-30% in most series. There are no substantial reports about the potential use of mitotane in the neoadjuvant setting, and there are no randomized, prospective data suggesting a benefit in the adjuvant setting. Side effects include anorexia, emesis, confusion, somnolence, myalgia, and ataxia, and can be substantial, making this agent less appealing for long-term use in an adjuvant setting.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, pp 3507-3569.

Question #99 ANSWER=E

A young Caucasian female presenting with a sudden rise in blood pressure will most commonly have renovascular disease. Fibromuscular disease of the renal artery accounts for one third of renovascular hypertension. Medial fibroplasia accounts for 75-80% of the fibromuscular dysplasias.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 7, pp 229-271.

Question #100 ANSWER=B

Urethral injury is the most common untoward event during placement of an artificial sphincter. The most difficult point in the dissection and the most frequent site of injury is where the urethra is attached to the septum of the corporal bodies at the 12 o'clock position.

Smith JJ III, Barrett DM: Implantation of the artificial genitourinary sphincter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 34, pp 1187-1194.

Question #101 ANSWER=D

During laparoscopic surgery, electrosurgically induced thermal injury may occur via one of four mechanisms: inappropriate direct activation, coupling to another instrument, capacitive coupling, and insulation failure. Intraoperatively, thermal injuries of the bowel may present as whitish spots on the serosal lining. In severe cases, the muscularis mucosae or the intestinal lumen may be seen. However, in many patients, thermal injury of the bowel is not realized at the time of the procedure. Postoperatively, the patient with unrecognized bowel trauma may not develop fever, nausea, or signs of peritonitis for three to seven days; the full extent of the bowel necrosis may take up to 18 days to fully develop. Therefore, the problem often does not become manifest until the patient has been discharged. Accordingly, bowel injury must be ruled out for any patient who develops a fever beyond postoperative day one or who complains of increasing abdominal discomfort. Abdominal radiographs are notoriously inaccurate because the carbon dioxide from the laparoscopy may remain as "free air" for more than two weeks after the procedure; however, an ileus pattern is usually present. An abdominal ultrasound will similarly be nonspecific and may detect loops of bowel or free fluid. The more sensitive test is an abdominal CT scan with oral contrast and delayed films. Laboratory values may be remarkable for leukocytosis with an associated left shift (i.e., increased percentage of neutrophils); in some patients, the latter occurs in the face of a normal leukocyte count. Minor postoperative thermal injuries of the bowel may be managed conservatively, aided by administration of antibiotics and an elemental diet. However, if the patient does not respond rapidly or develops worsening peritonitis, open surgical exploration is mandatory. Thermal injury caused by monopolar cautery often results in tissue damage that extends beyond the visible area of necrosis. With this in mind, the surgeon should perform a bowel resection with a safety margin of 6 cm on either side before completing an end-to-end anastomosis. Thermal injury caused by bipolar electrosurgery is more confined to the visible area of damage; thus, if the injury is small, it can be managed by simple excision of the defect and closure of the bowel wall. Injuries that involve more than half of the circumference of the bowel should be treated by excision of the affected bowel segment and end-to-end anastomosis.

Gill IS, Kerbl K, Meraney AM, Clayman RV: Basis of laparoscopic urologic surgery, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 100, pp 3455-3505.

Question #102 ANSWER=E

During childhood one of the more common associations with hematuria is elevated calcium excretion. The calcium creatinine ratio in the first year of life is usually less than or equal to 0.6. After one year of life, the ratio should be less than 0.4. Because this value is normal at this age observation is the correct answer.

Chevalier R, Howards SS: Renal function in the fetus, neonate, and child, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 50, pp 1765-1780.

Question #103 ANSWER=E

An incontinent ileovesicostomy avoids the risks of chronic catheter drainage. Continent urinary diversion is inappropriate in this setting. A repeat external sphincterotomy will most likely fail. Supravesical urinary diversion may involve more extensive surgery than necessary. Vesicostomy is difficult to manage in adults due to problems in securing a collecting device on the abdominal wall.

Leng WW, McGuire EJ: Reconstructive surgery for urinary incontinence. UROL CLIN N AM 1999;26:61-80.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 26, pp 997-998.

Question #104 ANSWER=B

After making the patient NPO and starting TPN, the next step is the administration of subcutaneous or I.V. somatostatin. Recent reports have shown a beneficial effect leading to drying up of lymphatic fistulas in this setting. Somatostatin works by decreasing the absorption of fats, inhibiting gastric, intestinal, and pancreatic secretions, and inhibiting motor activity of the intestines. The net effect is reduced flow within the major lymphatic channels, and reduced leakage from the fistula site. Somatostatin is thus recommended prior to proceeding with more invasive measures.

Lievovitch I, Mor Y, Golomb J, Ramon J: The diagnosis and management of postoperative chylous ascites. J UROL 2002;167:449-457.

Question #105 ANSWER=A

Desmopressin (DDAVP), a vasopressin analogue, is therapy for nocturnal enuresis due to an absent nocturnal boost of endogenous vasopressin. Prior studies found an improvement in 50-75% of patients with DDAVP. Desmopressin increases urine osmolality. It does not suppress endogenous vasopressin. Electrolyte studies show no consistent alteration. Hourly nocturnal urine production drops. Chronic usage up-regulates vasopressin receptors.

Koff SA, Jayanthi VR: Voiding dysfunction in children, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 64, p 2275.

Question #106 ANSWER=A

The medial pre-optic area has been identified in animals as the most important central integration center for sexual drive and penile erection. This area along with the paraventricular nucleus is driven by dopaminergic neurons. Stimulation of these neurons by dopamine sets off an oxytocinergic pathway to the spinal cord which eventuates in increased neural signaling into the penis. In the future, there is likely to be erectogenic drugs that are centrally-acting. The two most likely candidate classes are dopaminergic agonists or melanocortin agonists.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 45, pp 1591-1618.

Question #107 ANSWER=B

Bisphosphanates prevent osteoclastic absorption of calcium from the bones and can lead to hypocalcemia. Calcium should be given to prevent this and, along with Vitamin D, to enhance long-term bone health and stability.

Berruti A, Dogliotti L, Tucci M, et al: Metabolic bone disease induced by prostate cancer: Rationale for the use of bisphosphonates. J UROL 2001;166:2023-2031.

Question #108 ANSWER=D

Unilateral renal agenesis occurs in one out of 1200 births; it is more common on the left and may be inherited in an autosomal dominant pattern with variable inheritance. Genital abnormalities are the most frequently associated anomaly with approximately 40% of women having a concurrent mullerian duct abnormality usually, a unicornuate uterus with complete absence of the ipsilateral horn and fallopian tube. In men the testis and globus major are invariably present however the mesonephric duct derivatives, the globus minor, vas deferens, seminal vesicle, ampulla, and ejaculatory duct are absent, in up to 50%. Ureteral bud abnormalities also coexist with 25% of affected patients having vesicoureteral reflux, 10% having the contralateral kidney affected by a UPJ obstruction and 5% having the contralateral kidney affected by an obstructing megaureter. Twenty-five to thirty percent of children with the VACTERL association (vertebral, imperforate anus, cardiac, tracheo-esophageal atresia, renal, and limb anomalies) will have unilateral renal agenesis. Ipsilateral adrenal agenesis and two vessel cords are not significantly increased in patients with unilateral renal agenesis.

Bauer SB: Anomalies of the upper urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 55, pp 1889-1892.

Question #109 ANSWER=E

Hydroureteronephrosis of pregnancy commonly begins in the second trimester and is thought to have a multifactorial etiology. Although changes in plasma estrogen, progesterone, and human chorionic gonadotropin have been implicated, obstruction by the gravid uterus appears to be the primary factor in the development of the hydronephrosis.

Weiss, RM: Physiology and pharmacology of the renal pelvis and ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 11, pp 377-409.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 580.

Question #110 ANSWER=D

The purpose of the NIH CARE (Colpopexy And Urinary Reduction Efforts) study was to determine if the development of stress incontinence is reduced in continent women undergoing abdominal sacrocolpopexy randomized to Burch colosuspension versus no suspension. Enrollment was stopped early based on interim results because less stress incontinence was seen in patients randomized to the Burch procedure. The data will be further analyzed to determine if any aspect of urodynamic testing predicts outcome. Although any of the other procedures might be as effective as a Burch procedure at preventing stress incontinence post-operatively, they were not examined in the randomized trial.

Brubaker L, Cundiff GW, Fine P, et al: Pelvic Floor Disorders Network. Abdominal sacrocolpopexy with Burch colposuspension to reduce urinary stress incontinence. NEJM 2006;354(15):1557-1566.

Question #111 ANSWER=D

There is a significant rate of false negative imaging of the retroperitoneum on CT scan and microscopic disease may be present in patients with paratesticular rhabdomyosarcoma. Boys ten years of age or younger can be treated with chemotherapy alone. Boys over ten years of age should undergo ipsilateral lymph node dissection since 50% will have microscopic disease. Bilateral lymph node dissections are more morbid and do not improve survival over unilateral surgery. If the lymph nodes are positive for metastasis, the patient will require radiation therapy to the retroperitoneum in addition to chemotherapy.

Ritchey M: Pediatric urologic oncology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 70, p 2480.

Question #112 ANSWER=C

Fournier's gangrene is a dramatic necrotizing fasciitis of the genital and perineal regions. It is commonly seen in association with diabetes mellitus and with a predisposing anorectal or genitourinary conditions such as urethral stricture or perirectal abscess. Treatment consists of wide surgical debridement of necrotic tissue and urinary diversion. Multiple debridement sessions are frequently required to remove all non-viable tissue. Use of colostomy for fecal diversion is not routine. Fecal and urinary diversion without radical debridement is inadequate treatment. Percutaneous CT-guided drainage is not effective as there is no distinct abscess. Foley drainage, antibiotics, and hyperbaric oxygen may be adjunctive treatment but are not primary modes of therapy.

Laucks SS: Fournier's gangrene. SUR CLIN N AM 1994;74:1339-1352.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, pp 515-602.

Question #113 ANSWER=E

A rise in PSA of 1-1.5ng/ml/year following initiation of testosterone supplementation is worrisome for the presence of an undetected prostate cancer. While observation with a repeat PSA could be done, in patients who choose to remain on testosterone replacement a prostate biopsy is recommended. If cancer is detected, then testosterone replacement should be discontinued. Therefore, the recommendation would be to perform a prostate biopsy. The utilization of finasteride in this setting is not indicated.

Rhoden EL, Morgentaler A: Risks of testosterone-replacement therapy and recommendations for monitoring. NEJM 2004;350:482-492.

Question #114 ANSWER=D

Multilocular cystic nephromas occur in two temporal peaks. Fifty percent (50%) are found in children less than four years of age, usually boys and 50% are found in women in their 30's. Multilocular cystic nephroma exist on a spectrum that extends from multilocular cystic nephroma to either a cystic Wilms' in the younger children to cystic renal cell carcinoma in the adult patient. There is no indication that one lesion can convert to the other. Although benign in nature these tumors will continue to grow. Surgical excision is recommended to prevent destruction of adjacent renal tissue and confirm the diagnosis. Partial nephrectomy is preferred, but nephrectomy may be necessary for some lesions.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 56, pp 1965-1967.

Question #115 ANSWER=E

Formaldehyde is a gas that can be dissolved in water. The maximum dissolution is 37% formaldehyde in an aqueous solution. In other words, 100% formalin equals 37% formaldehyde solution. This solution is then diluted to give an appropriate concentration of formalin. Typically one starts with a low concentration (1%) of formalin bladder irrigations. If this fails subsequent irrigations can be increased to higher concentrations. One should first perform a cystogram to exclude vesicoureteral reflux. If reflux is found one should place ureteral occlusion balloons. Patients should be aware of potential postoperative pain, decreased bladder volume, and marked urinary urgency and frequency.

Sarnak MJ, Long J, King AJ: Intravesicular formaldehyde instillation and renal complications. CLIN NEPHROL 1999;51:122-125.

Question #116 ANSWER=A

Urethral recurrence following radical cystectomy and orthotopic neobladder is a rare event with a reported incidence of 2-3%. While invasive tumors are an indication for total urethrectomy and ileal conduit, noninvasive tumors can be managed initially with conservative therapy. For papillary tumors, TUR alone may be curative. However, intravesical chemotherapy and immunotherapy have been used in this setting, and in this patient with CIS, an initial attempt at preservation of the urethra and neobladder is warranted. For this reason, intraurethral BCG is the most appropriate choice.

Huguet J, Palou J, Serrallach M, et al: Management of urethral recurrence in patients with Studer ileal neobladder. EUR UROL 2003;43:495-498.

Question #117 ANSWER=B

The most likely diagnosis in this fetus is posterior urethral valves based upon male sex, bilateral hydronephrosis and a thick walled bladder. The clinical outcome of a child with severe posterior urethral valves is most specifically predicted by the presence or absence of oligohydramnios and when the onset of oligohydramnios was noted to occur. Increased renal echogenicity alone is not predictive, although in the setting of oligohydramnios is a poor prognostic indicator. Urinary electrolytes are useful only in the setting of oligohydramnios, as an indicator of renal salvageability, and in early gestation (18 to 24 weeks). Renal cortical cysts would indicate dysplasia, and prenatal intervention would not be beneficial.

Cendron M, Elder JS: Perinatal urology, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott Williams and Wilkins Co, 2001, vol 3, chap 46, pp 2041-2128.

Question #118 ANSWER=D

If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. All viable tissue should be preserved. Minimal debridement should be used in conjunction with topical antimicrobials. After granulation occurs, split thickness skin grafts are applied.

Balakrishnan C, Maralani S, Emanuele JA: Traumatic urethral fistula in a patient with burns. J BURN CARE REHABIL 1998:19:57-58.

Question #119 ANSWER=B

Acute urinary retention following brachytherapy is a common problem and may occur in up to one-third of patients. In prospective evaluations, patients with larger prostate volumes (> 50 grams) and moderate to severe baseline lower urinary tract symptom (LUTS) scores as assessed by patient reported validated instruments (AUA/IPSS) are associated with an increased risk for development of acute urinary retention. There is little if any available data to support an association between various dosimetry variables or tumor characteristics (Gleason score, PSA, clinical stage) and acute urinary retention. While androgen deprivation therapy has been advocated by some in downsizing large volume prostates prior to brachytherapy, patients should be counseled regarding the risk of acute urinary retention and long-term worsening of LUTS following brachytherapy, particularly among patients with moderate to severe baseline symptoms.

Miller DC, Sandler H, Wei JT: Complications of permanent interstitial brachytherapy for carcinoma of the prostate. AUA UPDATE SERIES 2004, vol 23, lesson 2, pp 10-15.

Question #120 ANSWER=A

The concept of neuromodulation is well established in animal models and trials in humans with a variety of neurodegenerative disorders are ongoing. Trials have been conducted in the USA using such drugs in the patient undergoing radical prostatectomy. There is no evidence at this stage that phosphodiesterase 5 inhibitors have any significant neuroprotective or neuroregenerative ability. Likewise, PGE1 a cAMP activator is not a neuromodulator. Gabapentin is used for neuropathic pain. Erythropoietin increases erythrocyte production in the anemic patient. It has recently been demonstrated to promote neurogenesis.

Lu D, Mahmood A, Qu C, et al: Erythropoietin enhances neurogenesis and restores spatial memory in rats after traumatic brain injury. J NEUROTRAUMA 2005;22:1011-1017.

Roesler R, Quevedo J, Schroder N: Erythropoietin, glutamate, and neuroprotection. NEJM 2004;351:1465-1466.

Kawakami M, Sekiguchi M, Sato K, et al: Erythropoietin receptor-mediated inhibition of exocytotic glutamate release confers neuroprotection during chemical ischemia. J BIOL CHEM 2001;276:39469-39475.

Genc S, Koroglu TF, Genc K: Erythropoietin as a novel neuroprotectant. RESTORATIVE NEUROLOGY & NEUROSCIENCE. 2004;22:105-119.

Question #121 ANSWER=A

The Tzanck smear uses cytologic techniques to examine cells from suspicious lesions, but a positive smear does not differentiate varicella-zoster virus from herpes simplex. Serological testing may reveal elevated antibody titers but will not distinguish between a previous infection, a primary infection, and a recurrent infection. In the past, herpes simplex virus type 1 (HSV-1) was associated with oral infections and HSV-2 with genital infections. Possibly because of an increase in oral-genital sexual contact, HSV-1 genital infections have become more common. The current method of choice for definitive identification of HSV is viral isolation in tissue culture.

Yalisove BL, Isada N: Myths in the diagnosis of genital herpes simplex infection. INFECT IN SUR 1989;Oct:374-378.

Berger RE, Lee JC: Sexually transmitted diseases: The classic diseases, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 17, p 682.

Question #122 ANSWER=C

The theoretical benefits of a stapled anastomosis are that it provides better blood supply to the healing margin, tissue manipulation is reduced, there is minimal edema with uniformity of suture placement, a wider lumen created, greater ease and less time are involved in performing the anastomosis, and the length of the postoperative paralytic ileus is reduced. In a large, prospective randomized study in which a hand-sewn two layer closure was compared to a stapled anastomosis, the complication rates were similar. However, the stapled anastomosis was faster by about 10 minutes. A comparison of the complication rates between sutured and stapled anastomoses reveals a leak and fistula rate of 2.8% for stapled and 3.0% for sutured anastomoses. Thus, the decision to perform a hand-sewn as opposed to a stapled anastomosis is based on surgeon preference and efficiency rather than efficacy.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3745-3788.

Question #123 ANSWER=A

In the prepubertal phenotypic female with suspected testicular tissue, endocrinologic studies are not very useful. Normal prepubertal levels of LH, FSH and testosterone are sexually indifferent. After puberty, patients with complete androgen insensitivity (CAIS) will classically have elevated LH, testosterone and estradiol. Mullerian inhibitory factor assessments after six months of age are also sexually indifferent. In this clinical situation, the major concern is the misdiagnosis of a patient with 5-alpha-reductase deficiency who should be raised as a male, compared to a patient with CAIS, who should be raised as a female. The best test to separate these two disorders is with genetic sequencing of the androgen receptor or 5-alpha-reductase gene. 10% of patients with CAIS will develop a testicular cancer if the testes are left in situ after puberty; no cases of prepubertal testicular carcinoma have been reported in this patient population. No indication exists for gonadal biopsy and the timing of gonadectomy, prepubertal or late pubertal, is controversial.

Husmann DA: Intersex, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott, Williams and Wilkins, 2001, vol 3, p 2547.

Question #124 ANSWER=D

Non-contrast CT images can identify all calcium oxalate calculi as high density signals similar to bone. Additionally, uric acid and matrix calculi that are frequently radiolucent on scout radiographs are easily identified with CT. MRI scans are unable to reliably identify urinary calculi.

Menon M, Resnick MI: Urinary lithiasis: Etiology, diagnosis, and medical management, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 96, pp 3271-3272.

Question #125 ANSWER=A

Numerous studies over the past decade have resulted in a substantially greater understanding of the immune mechanisms involved in BCG immunotherapy for bladder cancer. BCG initially binds to the urothelium through the interaction of fibronectin attachment protein (FAP) on the mycobacterial cell wall and fibronectin in the bladder wall. There is subsequent activation of urothelial and antigen-presenting cells resulting in the recruitment of granulocytes and immunocompetent mononuclear cell. This leads to a cascade of proinflammatory cytokines that sustains the immune response resulting in a predominately T-helper type 1 cytokine response and the development of granuloma-like cellular foci in the bladder wall. Ultimate eradication of residual tumor cells occurs through both direct cytotoxicity with interferon and other cytokine mediated toxicity.

Bohle A, Brandau S: Immune mechanisms in Bacillus Calmette-Guerin immunotherapy for superficial bladder cancer. J UROL 2003;170:964-969.

Question #126 ANSWER=D

This child is receiving near-maximal doses of oxybutynin and has a high-risk bladder profile. Tolterodine may have a lower side effect profile, but would not be expected to have a significantly different effect on bladder compliance. More frequent catheterization might be helpful, but in most social circumstances is unrealistic. Enterocystoplasty carries risks of acidosis, decreased bone growth and bladder augment rupture, and for these reasons is usually reserved for older children. Cutaneous vesicotomy will result in a low pressure system, and will protect the upper tracts until enterocystoplasty is more likely to be successful. Another option in this situation is urethral/sphincter dilation in an attempt to reduce detrusor LPP and improve compliance.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 64, pp 2231-2260.

Question #127 ANSWER=C

HIV patients have had dramatic clinical improvement with protease inhibitors. These drugs (primarily indinavir) can result in as high as a 6% incidence of urinary calculi. In the pure form these calculi are not demonstrated on noncontrast helical CT scan or standard radiographic imaging studies. Management should include hydration, discontinuation of medication for two to three days, and conservative pain management. Most stones will pass spontaneously.

Gentle DL, Stoller ML, Jarrett TW, et al: Protease inhibitor-induced urolithiasis. UROL 1997;50:508-511.

Question #128 ANSWER=E

Chemotherapy for testis cancer has been shown to be associated with an increased risk of vascular complications including lipid abnormalities, coronary artery disease including MI, Raynaud phenomenon, and hypertension. Two large studies report the relative risk of developing coronary artery disease to be between 2.6 and 7.1 in patients more than nine years following completion of chemotherapy. Men treated with chemotherapy for testis cancer also are at significantly increased risk of second malignancies.

Huddart RA, Norman A, Shahidi M, et al: Cardiovascular disease as a long-term complication of treatment of testicular cancer. J CLIN ONCOL 2003;21:1513-1523.

Question #129 ANSWER=D

Patients with upper spinal cord injuries tend to have preservation of reflexogenic erection, but not psychogenic or nocturnal erection. Both of these require action of brain centers. Vibratory ejaculation is dependent on sympathetic input from the thoracic cord located at T-10. This function is unlikely to be preserved in injuries below T-10. Electroejaculation may be used to harvest semen.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 45, pp 1591-1618.

Sigman M, Jarow JP: Male infertility, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 43, pp 1475-1531.

Question #130 ANSWER=B

Retrograde endopyelotomy may result in dramatic life threatening hemorrhage. This is usually due to an unrecognized lower pole crossing artery. If this is suspected an emergent arteriogram should be performed and the injured vessel embolized. Delayed intervention may result in continued transfusions, hemorrhagic shock and potential death. Retrograde ureteroscopy with fulguration is impractical with the marked hemorrhage. Ureteral stent placement will only temporize a potentially fatal situation. Exploratory laparotomy will likely result in nephrectomy. Angiography, in contrast, will likely result in embolization of a lower pole vessel and retain the vast majority of renal function. Exploratory laparotomy may be required after a negative arteriogram and persistent hemorrhage, likely secondary to a venous injury.

Badlani G, Karlin G, Smith AD: Complications of endopyelotomy: Analysis in series of 64 patients. J UROL 1988;140:473.

Wagner JR, D'Agostimo R, Babayan RK: Renal arterio ureteral hemorrhage: A complication of endopyelotomy. UROL 1996;48:139-141.

Question #131 ANSWER=D

Up to 35% of patients will develop a PSA recurrence within ten years after surgery. The natural history of biochemical recurrence after radical prostatectomy can be long and variable. On average, the median time from biochemical recurrence to metastases is eight years and from metastases to death is five years. Given the protracted natural history, identifying clinical variables that distinguish patients at risk for death from prostate cancer is essential. In one study of 1095 men with localized prostate cancer treated with radical prostatectomy, patients were assessed as to whether the rate of rise in the PSA level, the PSA velocity, during the year before diagnosis, the PSA level at diagnosis, the Gleason score, and the clinical tumor stage could predict death from prostate cancer. As compared with a preoperative annual PSA change of 2.0 ng/ml or less, an annual PSA change of more than 2.0 ng/ml was associated with a significantly shorter time to death from prostate cancer in those patients with a rising PSA after surgery. An increasing PSA level at diagnosis, a Gleason score of 8, 9, or 10, and a clinical tumor stage of T2 also predicted the time to death from prostate cancer. Thus, men whose PSA level increases by more than 2.0 ng/ml during the year before the diagnosis may have a relatively high risk of death from prostate cancer despite undergoing radical prostatectomy.

D'Amico AV, Chen MH, Roehl KA, Catalona WJ: Preoperative PSA velocity and the risk of death from prostate cancer after radical prostatectomy. NEJM 2004;351:125-135.

Question #132 ANSWER=D

Congenital abnormalities of the urachus include a urachal sinus, urachal cyst, patent urachus, vesicourachal diverticulum, and omphalomesenteric cyst/duct. Urachal abnormalities occur equally between boys and girls and present more often in adulthood with umbilical drainage followed by an umbilical mass and periumbilical pain. Staphylococcus aureus is the most common bacteria cultured from an infected sinus tract or cyst. An important aspect of treatment is initial antibiotic therapy. Incision and drainage or percutaneous drainage may be required for loculated abscess, particularly when it is non-responsive to antibiotic therapy. Omphalomesenteric ducts may connect the midgut to the umbilicus. Ultrasound will demonstrate a periumbilical mass and a sinogram will reveal communication of the umbilical sinus to the ileum. Definitive treatment centers on excision that should be delayed for a few weeks following the initial antibiotic therapy in order to decrease the inflammatory response. This will help limit the amount of bladder that may need to be resected and will reduce the risk of injury to adjacent intra-peritoneal structures.

Nguyen HT, Cilento BG: Bladder diverticula, urachal anomalies and other uncommon anomalies of the bladder, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 35, p 565.

Question #133 ANSWER=A

Cushing's syndrome may be caused by an adrenal tumor, ectopic ACTH production, and by excessive pituitary ACTH secretion (Cushing's disease). The basis of the high dose dexamethasone suppression test is that ACTH secretion in patients with Cushing's disease is not completely, but only partially, resistant to glucocorticoid feedback inhibition. Therefore, by increasing the dose of dexamethasone, pituitary secretion of ACTH is suppressed in patients with Cushing's disease and glucocorticoid production is reduced. In contrast, dexamethasone has no effect in patients with adrenal tumors and ectopic ACTH production since their pituitary glands are already suppressed. Serum cortisol may be used instead of urinary parameters.

Vaughan ED Jr, Blumenfeld JD, Del Pizzo J, Schichman SJ, Sosa RE: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 101, pp 3518-3520.

Question #134 ANSWER=E

Renal medullary carcinoma was first described in 1995 and to date less than 100 cases have been reported in the literature. It is an extremely aggressive disease with nearly all patients presenting with metastatic disease. Mean survival is less than six months and only two long-term survivors are reported in the literature. It has not been shown to respond to standard chemotherapy and/or immunotherapy regimens. Interestingly, approximately 3/4 of cases have been reported to involve the right kidney. Recent studies have reported amplification of the ABL gene and increased expression of ABL protein in the absence of BCR-ABL translocation characteristic of CML. Whether this tumor is responsive to STI-571 awaits further study.

Simpson L, He X, Pins M, et al: Renal medullary carcinoma and ABL gene amplification. J UROL 2005;173:1883-1888.

Question #135 ANSWER=C

The two major glomerular disorders are the nephrotic and the nephritic syndromes. The nephrotic presentation reflects non-inflammatory injury to the glomerular capillary wall, with consequent proteinuria, hypoalbuminuria, and hyperlipidemia due to increased hepatic lipoprotein synthesis. Serum cholesterol is typically elevated. The nephritic presentation is more typically hematuria and inflammatory cells in the urine sediment.

Blumenfeld JD, Vaughan ED Jr: Renal physiology and pathophysiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 6, pp 167-228.

Question #136 ANSWER=C

The fluoroquinolone antimicrobial drugs have rapidly become widely prescribed in urology. They work by inhibition of bacterial DNA gyrase, an enzyme that is involved with DNA supercoiling.

Wright AJ, Walker RC, Barrett DM: The fluoroquinolones and their appropriate use in treatment of genitourinary tract infections. AUA UPDATE SERIES 1993, vol 12, lesson 7, pp 50-55.

Schaeffer AJ: Infections and inflammations of the genitourinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 1, chap 14, p 541.

Question #137 ANSWER=A

The results of a recent large (1005 patients) randomized prospective European trial after a median followup of five years in patients at high risk for progression following radical prostatectomy have been reported. This study has shown significantly improved local control, PSA, and clinical progression rates at five years in patients receiving immediate adjuvant external beam radiotherapy compared to observation and treatment at the time of PSA recurrence. Although almost twice as many died of prostate cancer in the delayed treatment arm, longer followup is needed to assess this endpoint and no difference was seen in overall five year survival. An interim analysis of this trial did not show an increased risk of urinary incontinence for adjuvant radiotherapy and the impact on sexual dysfunction was not assessed.

Bolla M, van Poppel H, Collette L, et al: Postoperative radiotherapy after radical prostatectomy: A randomized controlled trial (EORTC trial 22911). LANCET 2005;336:572-578.

Question #138 ANSWER=A

Although ureteral injuries are uncommon during transvaginal suspension procedures, the ureter occasionally can be injured or obstructed by the surgical dissection or suspension suture. If recognized intraoperatively the suspension suture should be removed and a ureteral stent placed. If this is recognized postoperatively, a retrograde pyelogram will define the extent of the injury and retrograde stent placement attempted. If stenting is not successful, antegrade stenting is advised. Open repair is advised when retrograde or antegrade ureteral stent placement cannot be performed. Ureteroneocystostomy is performed only when significant devitalization of the ureter occurs.

Ficazzola M, Nitti VW: Complications of incontinence procedures in women, in: Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY:PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Co, 2001, chap 42, pp 489-491.

Question #139 ANSWER=C

Calculi may be the initial feature of sarcoidosis in a small percentage of patients. Sarcoidosis should be suspected in those individuals who have hypercalcemia, normophosphatemia, suppressed serum PTH, and an increased serum angiotensin converting enzyme level. Increased Vitamin D levels in these patients will increase the intestinal absorption of calcium and suppress PTH secretion. Steroids will decrease intestinal absorption of calcium and should normalize both hypercalcemia and hypercalciuria.

Harvey JA, Pak CY: Gouty diathesis and sarcoidosis in patient with recurrent calcium nephrolithiasis. J UROL 1988;139:1287-1289.

Rodman JS, Mahler RJ: Kidney stones as a manifestation of hypercalcemic disorders. Hyperparathyroidism and sarcoidosis. UROL CLIN N AM 2000;7:275-285.

Question #140 ANSWER=A

Cytoreductive nephrectomy as part of a multidisciplinary approach to metastatic renal cell carcinoma has been shown to prolong survival in two randomized clinical trials. However, its use is controversial and proper patient selection is crucial. The following inclusion criteria have been suggested for selecting patients for cytoreductive nephrectomy: 1) ability to resect more than 75% of the tumor volume, 2) no brain metastases, 3) adequate pulmonary and cardiac reserve, 4) ECOG performance status of 0 or 1, and, 5) predominantly clear cell histology.

Hafez KS, Montie JE: Indications and limitations of cytoreductive nephrectomy for metastatic renal cell carcinoma. AUA UPDATE SERIES 2004, vol 23, lesson 31, pp 250-255.

Novick AC, Campbell SC: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 75, p 2672.

Question #141 ANSWER=D

This child has a high pressure neurogenic bladder and is not currently suitable to receive a renal transplant. A vesicostomy would decompress his system, however, at his age it would not be socially acceptable or practical. A short ileal conduit has social limitations but also increased risk of chronic pyelonephritis and urolithiasis. Reconstructing the bladder is the most appropriate therapy. The ureters are not large enough to be suitable for ureteral augmentation. While gastrocystoplasty could benefit the immediate metabolic instability, problems with the hematuria/dysuria syndrome in a patient with normal sensation will become apparent. The best reconstructive measure would be to proceed with ileal augmentation prior to transplant.

Rink, RC, Yerkes EB, Adams MC: Augmentation cystoplasty, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PED UROL. Philadelphia, WB Saunders, 2001, chap 62, p 961.

Question #142 ANSWER=C

This patient has mumps-associated orchitis, a condition noted in 18% of post-pubertal patients with mumps. This is usually a self-limited condition that resolves over a seven to ten day period. However, in over half of the patients with orchitis, testicular atrophy occurs. Interferon alpha-2B can prevent testicular atrophy when administered after orchitis has developed. Bed rest and indomethacin will only help to decrease the pain of the orchitis but will not hasten its resolution or decrease the incidence of subsequent testicular atrophy. Gamma globulin, steroids, and diethylstilbestrol have been used to try to reduce the overall incidence of mumps orchitis. However, none of these modalities have been found to be of any benefit once orchitis has developed, nor do they prevent testicular atrophy.

Erpenbach KH: Systemic treatment with interferon alpha-2B: An effective method to prevent sterility after bilateral mumps orchitis. J UROL 1991;146:54-56.

Sigman M, Jarow JP: Male infertility, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 43, pp 1475-1531.

Question #143 ANSWER=B

The Studer ileal neobladder employs a tubularized afferent limb of ileum measuring 15-25 cm. The purpose of the limb is to allow peristaltic activity of the tubularized segment to prevent ureteral reflux, but a secondary benefit is that the limb can be used to bridge long segments of resected ureter. In cases of extreme shortening, the afferent limb can be elongated to the left paracolic gutter by passing it beneath the sigmoid colon. The remaining proposed reconstruction techniques do not provide a means of bridging the resected ureter, and as such they risk tension on the ureterointestinal anastomoses. The Koch pouch does allow an afferent ileal limb, but is not the best option given the high likelihood of complications including stone formation and mechanical failure of the intussuscepted valve.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 108, pp 3851-3856.

Question #144 ANSWER=A

Urethrocutaneous fistula is an uncommon complication of circumcision. It usually occurs at the time of neonatal circumcision when the urethra is crushed by the circumcision clamp. A fistula can also result from the inadvertent placement of a hemostatic suture into the urethra. This can be repaired if recognized immediately. In this case, observation for 4-6 months may result in spontaneous closure. Otherwise, formal closure of the fistula will be needed. Antibiotics are unnecessary without signs of infection. The injury is too distal for VCUG or retrograde urethrogram to adequately demonstrate the injury. Testosterone cream will not promote healing of this injury.

Peters CA: Perinatal urology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 51, pp 1781-1811.

Question #145 ANSWER=D

Treatment of penile Kaposi's sarcoma is palliative. As this patient has received systemic chemotherapy previously, radiotherapy is indicated and very likely to be effective. Although complete responses are uncommon, adequate palliation is seen in approximately 90% of such patients. Complications are limited and the radiation is well tolerated.

Vapnek JM, Quivey JM, Carroll PR: Acquired immunodeficiency syndrome related Kaposi's sarcoma of the male genitalia: Management with radiation therapy. J UROL 1991;146:333-336.

Lynch DF Jr, Pettaway CA: Tumors of the penis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 83, pp 2949-2982.

Question #146 ANSWER=C

Arterioureteral fistula is a rare but acute condition that should be treated emergently. It occurs due to pressure from an indwelling ureteral stent on diseased or radiated ileal vessels. Simple removal of the stent is inadequate after the fistula has developed. Embolization of the affected iliac artery is ill-advised. Previously, open repair of the fistula, often with vascular bypass procedure of the affected vessel was the standard therapy, but recent advances in endovascular stents have made this the best initial therapeutic option in this setting.

McVary KT, Marshall, FF: Urinary fistulae, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott Williams & Wilkins, 2002, vol 2, chap 29, p 1271.

Question #147 ANSWER=D

The obliterated umbilical artery is a consistent landmark for both open and laparoscopic surgery. It is a branch of the internal iliac artery and runs lateral to the bladder and medial to the obturator nerve. It is found anterior to the ureter in the pelvis.

Atala A, Keating MA: Vesicoureteral reflux and megaureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 59, p 2088.

Question #148 ANSWER=D

In general, within a month of stone passage, the effects of obstruction and/or urinary tract infection have resolved and the patient has returned to his or her normal dietary routine. A complete metabolic evaluation should not be performed in the hospital because of the interruption in the patient's usual daily routine and diet. Likewise, a metabolic evaluation in the presence of an indwelling ureteral stent or partially obstructing calculus may not reflect the patient's normal physiology. Patients should be counseled about increased fluid intake after the first stone episode. Metabolic evaluation should be initiated after the second calculus episode. In general, if the patient's urine is uninfected, and a month has transpired since the time of stone passage, the metabolic evaluation can be performed.

Preminger GM: The metabolic evaluation of patients with recurrent nephrolithiasis: A review of comprehensive and simplified approaches. J UROL 1989;141:760.

Pak CY, Resnick MI: Medical therapy and new approaches to management of urolithiasis. UROL CLIN N AM 2000;27:243-253.

Question #149 ANSWER=A

Recently, there was a comprehensive review for patient treatment based on prostate needle biopsies demonstrating prostatic intraepithelial neoplasia (PIN) or atypical foci suspicious for carcinoma. With regards to PIN, the following conclusions were derived. 1) Low grade PIN should not be documented in pathology reports due to poor interobserver reproducibility and a relatively low risk of cancer following re-biopsy. 2) The expected incidence of HGPIN on needle biopsy is between 5% and 8%. 3) Although the diagnosis of HGPIN is subjective, interobserver reproducibility for its diagnosis is fairly high among urological pathologists. 4) The median risk recorded in the literature for cancer following the diagnosis of HGPIN on needle biopsy is 24.1%. 5) The majority of publications that compared the risk of cancer in the same study following a needle biopsy diagnosis of HGPIN to the risk of cancer following a benign diagnosis on needle biopsy show no differences between the 2 groups. 6) Clinical and pathological parameters do not help stratify which men with HGPIN are at increased risk for a cancer diagnosis. 7) A major factor contributing to the decreased incidence of cancer following a diagnosis of HGPIN on needle biopsy in the contemporary era is related to increased needle biopsy core sampling, which detects many associated cancers on initial biopsy, such that re-biopsy, even with good sampling, does not detect many additional cancers. 8) It is recommended that men do not need routine repeat needle biopsy within the first year following the diagnosis of HGPIN, while further studies are needed to confirm whether routine repeat biopsies should be performed several years following a HGPIN diagnosis. The results concerning atypical glands suspicious for carcinoma were summarized as follows. 1) An average of 5% of needle biopsy pathology reports are diagnosed as atypical glands suspicious for carcinoma. 2) Cases diagnosed as atypical have the highest likelihood of being changed upon expert review and urologists should consider sending such cases for consultation in an attempt to resolve the diagnosis as definitively benign or malignant before subjecting the patient to repeat biopsy. 3) Ancillary techniques using basal cell markers and AMACR (alpha-methyl-acyl-coenzyme A racemase) can decrease the number of atypical diagnoses, and yet one must use these techniques with caution since there are numerous false-positive and false-negative results. 4) The average risk of cancer following an atypical diagnosis is approximately 40%. 5) Clinical and pathological parameters do not help predict which men with an atypical diagnosis have cancer on repeat biopsy. 6) Repeat biopsy should include increased sampling of the initial atypical site, and adjacent ipsilateral and contralateral sites with routine sampling of all sextant sites. Therefore, it is critical for urologists to submit needle biopsy specimens in a manner in which the sextant location of each core can be determined. 7) All men with an atypical diagnosis need re-biopsy within three to six months. The authors concluded that it is critical for urologists to distinguish between a diagnosis of HGPIN and that of atypical foci suspicious for cancer on needle biopsy. These two entities indicate different risks of carcinoma on re-biopsy and different recommendations for followup.

Epstein JI, Herawi M: Prostate needle biopsies containing prostatic intraepithelial neoplasia or atypical foci suspicious for carcinoma: Implications for patient care. J UROL 2006;175:820-834.

Question #150 ANSWER=D

The prior ileal conduit and the present continent cecal reservoir has led to the loss of significant ileum. The terminal ileum is responsible for the reabsorption of bile salts. With significant loss of ileum, bile salts are unabsorbed and enter the colon decreasing both water and electrolyte absorption. This limits the available bile salt production by the liver, thus preventing fatty solubilization and absorption in the jejunum. This leads to increased fatty acid in the small bowel lumen which forms calcium soaps, decreasing the amount of calcium available to complex with oxalate. The resulting increase in free oxalate in the bowel leads to hyper-absorption. In addition, the bile acid load in the colon results in increased permeability of free oxalate leading to subsequent hyperoxaluria. These factors result in steatorrhea and secretory diarrhea and urolithiasis. Lack of fat absorption may result in deficiency of the fat-soluble Vitamins A and D.

Grocela JA, McDougal WS: Metabolic complications in urinary diversion in, Taneja SS, Smith, RB, Ehrlich, RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Co, 2001, chap 40, pp 468-469.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3745-3788.